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Słowo wstępne

Zaprezentowany 51. numer „Zeszytów Naukowych Politechniki Częstochowskiej. Zarządzanie" stanowi bogaty zbiór czternastu artykułów naukowych, których tematyka odzwierciedla studia nad procesem zarządzania. Autorzy poszczególnych opracowań starają się wyjść poza tradycyjne koncepcje i definicje zarządzania, chcąc pokazać różnorodność wariantów jego rozumienia. W tekstach zawartych w niniejszym numerze zaprezentowane są wyniki własnych badań empirycznych autorów oraz rozważania teoretyczne i refleksje, poparte przeglądem literatury krajowej i międzynarodowej. Artykuły przedstawione w niniejszym numerze stanowią prezentację różnych perspektyw i podejść badawczych charakterystycznych dla poszczególnych dziedzin wiedzy, zarządzania, ekonomii i społeczeństwa. Złożoność procesów zachodzących w sferze zarządzania zmusza do nieszablonowego spojrzenia na problematykę badawczą poprzez odnajdywanie nowych obszarów dla podejmowanych działań. Autorzy w swoich pracach, poprzez szczególne ujęcie problematyki nauk o zarządzaniu i jakości, wykazują zróżnicowanie oraz wieloaspektowość tej dziedziny w kontekście jej rozumienia. Dyskusja naukowa podejmowana w opracowaniach dotyczy bardzo panoramicznego spektrum problematyki funkcjonowania podmiotów gospodarczych w ujęciu przedsiębiorczości, strategii, obsługi klienta oraz zarządzania zasobami ludzkimi. Zakres tematyczny dotyczy szerokiego ujęcia problematyki i analiz związanych z innowacyjnymi modelami biznesowymi; znaczeniem jakości szkoleń pracowników; inteligentnym zarządzaniem miastem; specyfiką gospodarki szarej strefy w warunkach kryzysowych; wpływem wykształcenia na wyniki gospodarcze w krajach Grupy Wyszehradzkiej; jakością usług IT w branży e-commerce; metodami finansowania w zakresie wsparcia innowacyjnej działalności MŚP w Polsce; przedsiębiorczością w tworzeniu mikro i małych firm; modelem zrównoważonego zarządzania w sektorze górniczym; sposobami pozyskiwania darowizn pieniężnych za pośrednictwem stron internetowych przez organizacje non profit; strategiami zarządzania; podejściami procesowymi i dojrzałością procesową w podmiotach leczniczych; rozwojem nowych produktów. Pogłębianie wiedzy o otaczającym nas świecie oraz poszukiwanie nowych rozwiązań są nieodłącznymi cechami charakteryzującymi ludzi, którzy stanowić będą o przyszłości.

Bieżący numer „Zeszytów Naukowych Politechniki Częstochowskiej. Zarządzanie" jest owocem prac grupy przychylnych ludzi, którym należą się serdeczne podziękowania, a został stworzony w celu promowania i propagowania wiedzy z dziedziny nauk o zarządzaniu i jakości. Jako Zespół Redakcyjny wierzymy, że niniejsza publikacja spotka się z zainteresowaniem szerokiego grona Czytelników i stanie się inspiracją do pogłębionych badań z zakresu prezentowanych obszarów tematycznych, jak również poszerzania nowych horyzontów naukowych.

Redakcja

Preface

The current 51st issue of "Research Reviews of the Czestochowa University of Technology. Management" is a rich collection of fourteen scientific articles whose topics reflect studies on the management process. The authors of individual articles attempt to go beyond traditional concepts and definitions of management, showing a variety of variants of its understanding. The texts included in this issue present the results of the authors' empirical research as well as theoretical considerations and reflections, which are supported by a review of national and international literature. The articles in this issue present various perspectives and research approaches characteristic of particular fields of knowledge, management, economics, and society. The complexity of the processes taking place in the management sphere forces us to look at research issues in an unconventional way by finding new areas for undertaken activities. In their works, the authors, through a specific approach to the issues of management and quality sciences, demonstrate the diversity and multi-faceted nature of this field in the context of its understanding. The scientific debate undertaken in the articles concerns a very wide spectrum of issues related to the functioning of business entities in terms of entrepreneurship, strategy, customer service, and human resources management. The thematic scope covers a broad approach to issues and studies related to innovative business models; the importance of the quality of employee training; intelligent city management; the specificity of the grey zone economy in crisis conditions; the impact of education on economic results in the Visegrad Group countries; quality of IT services in the e-commerce industry; financing methods to support innovative activities of SMEs in Poland; entrepreneurship in creating micro and small companies; a model of sustainable management in the mining sector; ways for nonprofit organisations to solicit monetary donations through websites; management strategies; process approaches and process maturity in healthcare entities; development of new products. Expanding knowledge about the world around us and searching for new solutions are inherent features of people who will determine the future.

The current issue of "Research Reviews of the Czestochowa University of Technology. Management" is the result of the work of a group of friendly people who deserve our heartful thanks, and was created to promote and disseminate knowledge in the field of management. As the Editorial Board, we believe that this publication will be of interest to a wide range of readers and will become an inspiration for in-depth research in the presented topic areas, as well as broadening new scientific horizons.

Editorial Board

Politechnika Częstochowska
Wydział Zarządzania

Zeszyty Naukowe Politechniki Częstochowskiej. Zarządzanie
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ACQUIRING CUSTOMERS THROUGH CONTINUOUS TECHNOLOGICAL DEVELOPMENT – DIGITAL OPEN INNOVATION BUSINESS MODEL

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Abstract: In these times of uncertainty in the business environment, organizations need to direct their efforts towards innovation strategies and adopt a business model based on digitalization. All the technological advancements push companies to use digitalization in their business management, to set up instruments so they can communicate with their clients to improve products and services. Through the Digital Open Innovation Business Model, organizations can have an enormous and important impact on the market, and they can improve and revolutionize the manner they operate their businesses. A relevant aspect of operating a Digital Open Innovation Business Model is to obtain a competitive advantage over competitors by developing new products and services or improving the current ones. By taking Amazon and Tesla as a case studies, the aim of the article is to focus on the importance of implementing the Digital Open Innovation Business Model as a means for the company to be profitable and provide added value for their clients.

Keywords: digital business model, digitalization, open innovation, open innovation strategies

JEL Classification: O32, Q55, O00, O30, O32, O36

Introduction

In these unpredictable times, companies need to be agile and always be able to adapt to the new technological advancements in the business environment by adopting innovative strategies and an open innovation business model. The challenges of the market and the need for organizations to overcome them swiftly create a proper

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environment for these companies to be successful and gain a competitive advantage over the other players in the industry. All the technological tools and instruments have revolutionized the strategies adopted by companies in terms of making real-time decisions by maintaining on-going communication with clients, suppliers, shareholders in order to improve their current offer and develop innovative products. Moreover, firms may consider approaching niche markets. All of these constitute a business model adopted by a company.

Open innovation is a relatively new concept that appeared in the early 2000s, defined by Henry Chesbrough. It conceptualizes a new perspective in the innovation process of companies in which stakeholders' ideas are considered for product development. In doing this, companies create added value for their clients, and it will lead to making them profitable. Organizations should use a combination of different digital channels to gather improvement and innovation ideas from stakeholders to be implemented in their product and service offer.

Another important concept is digitalization, which has become very important in the current business market as it dictates how companies conduct their operations and how they can provide long-term value to all stakeholders (clients, suppliers, shareholders, partners). Companies which harness the potential of digitalization by using Big data and analytics will grow their revenue and they will have higher operational efficiency (Marshall et al., 2015).

Organizations are looking to benefit from these new technological tools, and they observe digitalization as "the use of digital technologies to innovate a business model and provide new revenue streams and value-producing opportunities" (Parida et al., 2019). There are numerous innovative business model challenges which should be taken into consideration when adopting digitalization. One important key aspect is the way to create, customize, analyse, and sell intangible products in a digitalized process. There are business models which promise their clients a particular result and they do not sell any product or service (Visnjic et al., 2018).

The research undertaken for this paper is important since it provides a wider and a more detailed perspective on two concepts of interest: open innovation and digitalization, among practitioners, as well as the academic and business world. Innovation and digitalization are the main drivers of adaptability for companies (Araújo et al., 2021), as these concepts are placed at the centre of companies' strategy. They are vital for the development of companies, the creation of value and obtaining competitive advantages (Rocha, 2018), especially in recent years following the challenges and uncertainties in the economic environment (Frynas et al., 2018). The current study broadens the knowledge by providing the successful stories of Amazon and Tesla, which combine open innovation and digitalization methods in their organization strategies to increase their profits, being good examples for other companies. Moreover, the paper provides a new definition of the concept of Digital Open Innovation Business Model, which may constitute the basis for future research on the subject.

In the following sections of the paper, details and explanations of each concept will be given: digitalization, open innovation, business model. They will form a new perspective: the Digital Open Innovation Business Model (DOIBM). To demonstrate how it can impact companies in attracting and engaging clients, it will be explained by the successful stories of two companies, Amazon, and Tesla.

Literature review

Evolution of Open Innovation

Traditionally, until the year 2000, companies used to have a specific department with specialized employees who came up with innovative ideas to improve and develop their products. Starting with the new technological developments (the Internet, globalization, usage of computers worldwide, access to information in a faster manner etc.), relying only on those employees proved to be insufficient (Chesbrough, 2003). As such, companies started to search for ideas from their clients, suppliers, and other stakeholders. In this way, a new concept arose called Open Innovation. It was first defined by Henry Chesbrough, and it states that organizations need to be able to gather ideas from external and internal sources so they can take their products and services to market looking for new innovative technology (Chesbrough, 2003).

Open innovation is about having an open business ready to gather information, implement it and innovate anytime throughout the product cycle. The flexibility and transparency of this model made it easy to be adopted by companies. The connection between the company and clients changes according to the stage of the product lifecycle (Aouinait, 2022). In the first stages of the innovation process, the relationship between clients and organizations are the most important as it dictates the new ideas as well as the functionalities and specifications of products, whereas in the later stages these aspects become less important (Codini, 2015). Cooperation, collaboration and the exchange of new and innovative ideas represent the core of this new model.

Table 1. Open Innovation components

Shared value & vision	User driven innovation	Sustainable intelligent living	Full spectrum innovation	Innovation capability management
Quadruple helix innovation	Openness to innovation & culture	Simultaneous innovation	Mixed-model technologies	High expectation entrepreneurship
Ecosystem orchestration & management	Adoption focus	Business model innovation	Network effects	Social innovation
Co-creation & innovation platforms	21st century industrial research	Intersectional innovation	Servitization	Structural capital innovation

Source: (Curley & Salmelin, 2013)

In time, this new model evolved, and European Union researchers developed a new version, Open Innovation 2.0, in 2013. The advances in technology and other challenges in the market, opened up the perspective of collaboration between various organizations, which made companies from business, the academic world and government to join forces and elaborate a new model to provide innovative products and services (Curley & Salmelin, 2013). The new model, Open Innovation 2.0, includes 20 components, shown in Table 1.

At the same time as Open Innovation 2.0, in 2013, another paradigm emerged as Open Innovation 3.0 (Embedded Innovation). It is defined as the "fundamental ability of a firm to synchronize organizational structures, processes and culture with open collaborative learning processes in surrounding communities, networks and stakeholder groups so as to ensure the integration of different external and internal knowledge, i.e., competences or technological capabilities, and to exploit this knowledge to commercial ends" (Hafkesbrink & Schroll, 2011). This new concept includes the surrounding communities in the open innovation process and comprises four types: Affinity Communities (persons interested in an organization's products and services), Communities of Practice (persons interested in solving problems), Communities of Interest and Communities of Science (knowledgeable persons).

In the past few years, a more recent paradigm was defined as Open Innovation 4.0. This new model was conceptualized as a result of the objectives established on the 2030 Agenda from the United Nations, where sustainability occupies an important place. Apart from the sustainability aspect, this model comprises a more accelerated innovation cycle (Costa & Matias, 2020) switching to automatization, digitalization, and digital security (Costa & Matias, 2020). In an era where the Internet is advanced and communication is done by means of digital tools along with the fact that information and idea sharing are done over the Internet between persons from all parts of the world, companies are increasingly more forced to use the Open Innovation 4.0 process in how they operate their business. The business is evolving and there are more technological advancements emerging every day. Companies need to update and adapt in creating value for their clients by gathering information from them, having communities nearby and by means of digital tools, firms can implement these innovative ideas in their product and service offers.

The role of digitalization

Digitalization has gained progressively more ground in the business world in recent years due to the challenges faced with the fact that more employees work from home and the constant need to stay updated on how to create added value for clients. By incorporating digital tools in business operations, an organization can develop strong relationships with interested stakeholders (clients, suppliers, government etc.) having access to new business opportunities and challenges from the external environment (competitors, universities) (Bresciani et al., 2021).

Some of the roles played by digital tools such as Big data, artificial intelligence, social media, cloud computing, the Internet of things and blockchains, include methods by which companies gather information and make timely predictions in the decision-making process. Big data is defined as huge volumes of complex data which use several tools and technologies related to data management to analyse information

(Iqbal et al., 2018). Artificial intelligence comprises machines, which based on previous information and experience, can take decisions and actions (Samoili et al., 2020). The Internet of things constitutes a network which can detect information and data using software intelligence and an internet connection (Rayes & Salam, 2022). Kaplan and Haenlein (2010) define social media as applications based on accessible and digital technology used to share and create ideas and information socially in an online environment. Blockchains have a shared database which contains a growing list of data and information (Tapscott & Tapscott, 2018). Cloud computing is a model to enable "convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, storage, applications) that can be rapidly accessed and updated with minimal effort or interaction" (Campbell et al., 2018).

Using all the digital tools mentioned above can improve internal processes and can lead to reducing costs (Parida et al., 2019). Moreover, digitalization can provide new ways for companies to gain revenue. An important aspect of using digital instruments in business is to provide transparency in the relationship of companies with their clients and other stakeholders. Parida et al., (2019) defined digitalization as "the use of digital technologies to innovate a business model and provide new revenue streams and value-producing opportunities". Digitalization should be part of the strategy of all organizations as it influences companies "in all industries in terms of organizational structures, products, production, market shares, selling strategies, and as a result, firms have to establish management tools and practices to face these challenges" (Singh et al., 2023).

Another key aspect to consider is the rapid return on investment when using digital tools (Klymash et al., 2023). Digital tools are present in several businesses, such as online trading, tourism services as hotel bookings, travel arrangements (car sharing, airplane reservations etc.) and they have an important impact on payment and transaction processes. The digital tools presented above make it easier for companies to communicate with clients, use them to make rapid and efficient decisions to increase revenue and can reach stakeholders throughout the world.

New business models – Innovation Business Model and Digitalized Business Model

In the current changing business environment, many organizations need to innovate in various areas of their activity. Rapid shifts in clients' needs and expectations force companies find and implement new solutions for their business models. These new solutions may refer to products, organization, or processes (Otola & Grabowska, 2020). Teece (2010) defines the business model as "the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit". Moreover, Teece (2010) highlights the fact that the business model is defined as an organization's architecture in which the value proposition for the customer is supported by data and other evidence and it has revenue and costs structures in order to deliver value. In 2016, Wirtz et al., stated that the business model is an aggregation of the activities undertaken by the company. In addition to the aspects related to value creation and strategy, elements such as the client and market are observed in order to achieve the objective of securing a competitive advantage. The business model has nine elements: value proposition, target customer, distribution channel, relationship, value configuration, core competency, partner network, cost structure, and the revenue model (Wirtz, 2020). Organizations should focus on creating customer value, considering the competition (Hedman & Kalling, 2002) and the revenue outcomes along with strategic partnerships (Wirtz, 2020).

By introducing innovation in the business model, firms become more responsive to their competitors' actions and are able to respond quickly to the dynamic environment. Innovation may refer to organizations already in the market and to newly established business models by start-ups. Not only do businesses need to innovate to adapt constantly on the market, but they have to shift from a closed perspective to an open one, in which they should include clients and other stakeholders in the way they operate their business.

On the other hand, digitalization has become part of the everyday life of clients and companies in the last 15 years with the advancements in technology. In order for firms not to produce perturbances in how they operate their activities, they are suggested to follow a digitalized business model beside the traditional one (Bouncken et al., 2019). In time, companies may choose to shift altogether to the new digitalized business model. Using Big data, the Internet of things, and social media among other digital tools, will make companies create added value for their clients as finding out their changed expectations will increase the revenue and create improved and new products and services based on the ideas gathered from the market.

New concept definition – Digital Open Innovation Business Model (DOIBM)

Digitalization and open innovation are considered imperative for the success of all businesses in today's changing market. We may consider a rather new business model called the Digital Open Innovation Business Model (DOIBM), which comprises both concepts of digitalization and Open Innovation. Researchers have emphasized these two concepts rather separately, however, in the current business environment, there is a greater need to join these models in a new concept – DOIBM. The open innovation business model is defined as "a distributed innovation process based on purposefully managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model" (Chesbrough & Bogers, 2014). It consists of a lack of control of the processes and results (Mahr et al., 2010), includes external information and knowledge by using licensing, acquisition, and collaboration throughout the value chain (cooperation with customers, suppliers, competitors, and other interested organizations), which can be used in the process of new product development (Björkman et al., 2010). This forms the inbound process (Loučanová et al., 2022). Internal knowledge can be used externally, which is included in the outbound process (Ludvig et al., 2020). These aspects help companies to reduce risks and costs, quickly launch new products on the market and increase the performance of the companies' processes (Fjeldstad et al., 2012). Companies that follow an open innovation business model are in search of new ways to collaborate with clients and suppliers so businesses can open and expand under the co-creation characteristic (Turoń, 2022).

On the other hand, the digital business model links two domains of the organization: technological and economic areas (Pieroni et al., 2019). It is more about how a company transforms technology into economic value (Ritter & Schanz, 2019). Digital tools affect the business model of a company in the perspective of value proposition, value creation and the automation of processes (Frank et al., 2019; Soluk et al., 2021). Technology transforms how the operations and processes of a company are carried out and revenue is generated (Veit et al., 2014). Digitalization helps companies to develop new products and processes as well as to launch them rapidly on the market (Khin & Ho, 2019). Digital capability makes the firm utilize technology and Big data to reduce consumption, to establish a new production system to monitor activity in various on-site locations and receive real-time feedback (Queiroz et al., 2019).

Considering the characteristics of the digital business model and the Open Innovation business model, we propose a new definition for the Digital Open Innovation Business Model (DOIBM) as an innovative manner which can be used by enterprises to create value for customers, gain new revenue streams and value producing opportunities by using digital technologies to gather ideas from external and internal sources to innovate their processes, products, and services.

The open innovation digital business model incorporates digital tools in order to create value, innovation value, value proposition value and value delivery innovation (Clauss et al., 2019; Panda, 2019; Still et al., 2017). Value creation innovation constitutes the process of using new partnerships and digital technologies to provide customers value (Clauss et al., 2019; Still et al., 2017). New software and digital platforms may support new services (payment), create good collaboration relationships between companies and attract new clients (Dasí et al. 2017). In organizations where digital tools, Big data and social media were integrated in the business activity, value was delivered to customers (Bouwman et al., 2019). In other companies, discussions on forums and blogs were used to build a closer relationship and connection with customers (Wikström & Ellonen, 2012). Other firms have used indirect distribution channels by means of digital platforms to expedite the delivery of products (Baber et al., 2019). Firms employ freelance bloggers to share the content of their products in the online environment (websites, networks) leading to lower costs and handling customers on the spot so their feedback can be received in real-time (Wikström & Ellonen, 2012). By utilizing this strategy, companies can encourage clients to access their websites, which will increase the website's traffic, and thus higher revenue (Wikström & Ellonen, 2012). Also, by having a customized pricing plan, clients choose the most suitable model for them and this will improve business revenues (Parida et al., 2019).

It is important for companies to be up to date and to meet customers' expectations to obtain a competitive advantage in the market and gain higher revenues. To highlight the advantages of having a Digital Open Innovation Business Model (DOIBM) for a company, Amazon's and Tesla's success stories will be presented as examples.

Research methodology

The objective of this paper is to provide details on how a company can meet clients' expectations and be profitable using a combined business model, between the digital business model and the Open Innovation business model in order to obtain the most successful results. Two companies were studied and their strategies of integrating clients' opinions in their innovation process and how they use digital platforms to sell their products. The method chosen to highlight the benefits of the Digital Open Innovation Business Model (DOIBM) is the case study. By means of this method, the DOIBM concept is researched more from a practical perspective in which the theory can be observed and verified whether it has good results or not. The case study provides answers to questions such as, "How is DOIBM put into practice successfully by the companies?" "What results did the companies obtain after implementing DOIBM?" This research method provides additional information which comes as a completion of the theoretical part and adds value to the paper. By selecting two companies, the theory can be analysed in depth and can provide a wider understanding of the researched subject.

The documentation method was used, thus online documents, online platforms, news websites, company's reports were reviewed and consulted in order to describe the digital and Open Innovation activities adopted by the respective companies. By using the case study as the research method, the way in which the theoretical aspects of the Digital Open Innovation Business Model are combined with practical ones can be observed. The author's intention is to provide examples of two companies which use in practice the concept of the Digital Open Innovation Business Model (DOIBM).

Results – Amazon case study

The ecommerce environment and the rise in popularity of online shopping have gained increasingly more ground in the last decades as technology has continuously developed. Following the surge in online shopping in 2020, the trend continued to rise between 2021 and 2022, with an average 18% increase over the three-year period (Semrush Blog 2023). In 2023, the trends in e-commerce relate to artificial intelligence as it is used more by companies and clients. The leader in the ecommerce industry is Amazon, which operates on international markets, and it expanded its operations rapidly. With sales of 2,722 million dollars, Amazon occupies the first place, followed by AliExpress (845 million USD), Walmart (748 million USD) and eBay (699 million USD). It can be noted that the US and European markets are declining in their share in sales, thus companies are looking for opportunities for expansion into other markets, such as promising countries from Asia, e.g. India or the Philippines.

Considering the fact that technology is quickly developing, and the competition is fierce, Amazon needs to secure its position as a leader on the market, thus implementing digital tools and open innovation is crucial for the organization.

Amazon was founded in 1995 as an online retailer of books, soon becoming a digital platform for selling various products. With the latest technology changes, Amazon has offered more digital products on its platform, so its offer can be more up to date for today's customers and to have higher profitability. The company's ecosystem includes "retail, transportation, B2B distribution, payments, entertainment, cloud computing, and other segments" (Dudovskiy, 2020). Starting with ecommerce, Amazon went on to be more digital, offering several elite products, which include music streaming, e-books or software by paying a subscription.

Amazon now has several divisions and products in its portfolio such as Amazon.com (online retail shop), Amazon Advertising, Amazon Alexa, Amazon Appstore, Amazon Basics, Amazon Books, Amazon Kindle, Amazon Music Unlimited, Amazon Prime and others (Anon, 2021).

Being an online store among others, Amazon uses ecommerce automation software on its platform. This automated solution may save the money, work, and time of businesses in different processes like establishing product prices and analysing sales trends. Ecommerce automation can be programmed by companies to perform repetitive tasks with no or little intervention so it can run the business easy and quickly. There are several benefits of using this software (Amazon, 2022):

- Obtaining important insights: the data and information can be rapidly found and compiled.
- Higher customer satisfaction: any changes to product prices are made in real-time, there is no waiting time.
- Consistency of the brand: the message spread across all channels is the same.

Moreover, Amazon developed Alexa, a cloud-based voice service on millions of devices worldwide, providing clients a more intuitive and easier way to interact with technology each day (Amazon, 2022). The service can be installed on any device which can support it, and Alexa can help consumers with numerous useful things in their personal lives, such as dimming the light in a room, playing music, reading the latest news and ecommerce. The company is up to date and uses artificial intelligence and the framework of the Internet of things in this application so clients can enjoy a full experience. Amazon uses Amazon Echo, a smart speaker, an Internet of things device, which constitutes the central point of the Alexa service. Alexa communicates with Amazon Echo and with other Internet of things compatible devices by converting Alexa's voice in the communication protocol used by other applications (Chung et al., 2017). Amazon developed artificial intelligence into robots to improve inventory operations in two new robot warehouses in the US. In these facilities, robots drive, load, and unload parcels to deliver products efficiently to clients while reducing costs (GlobalData, 2022).

At the same time, Amazon uses artificial intelligence to make predictions to determine the future purchases of clients based on past choices and their identity based on a well-established algorithm. On the other hand, Amazon uses cloud computing, Amazon Web Services (AWS) to provide clients a variety of services including computing power, storage, databases, and analytics (Digital Directions, 2022). AWS is an innovative service that provides organizations a solution to store data and reduce costs. Besides data storage, the AWS service provides companies Big data and analytics so they can process large amounts of data.

As a technology company, Amazon uses open innovation in developing the Alexa service allowing clients who are interested in technology and third-party developers to contribute to Alexa's benefits and utilities. The company relies on open innovation to innovate and improve Alexa through collaborative communities and crowd contests. Each year, Amazon organizes contests offering million dollars prizes and it gathers dozens of research groups from universities. They research and share new ideas to include new skills and abilities in the Alexa service. Moreover, through collaborative communities, Amazon creates platforms where independent and corporate developers can share ideas and innovate Alexa's service.

Amazon's business model proved to be very profitable until 2021, and it continuously adapts to the new technological advancements in the external business environment creating added value for clients. Using various digital tools such as the Internet of things, artificial intelligence, ecommerce automation tools and providing digital platforms for clients to purchase products and services, Amazon is operating a digitalized business model.

In 2022, Amazon had a decrease in in profits as a consequence of increasing operational costs; nevertheless, this is sustained by innovations and newly released products and services by which the company accessed new markets and obtained more competitive advantages in the market. In Figure 1, we can see the profit obtained by Amazon from 2012 until 2022.

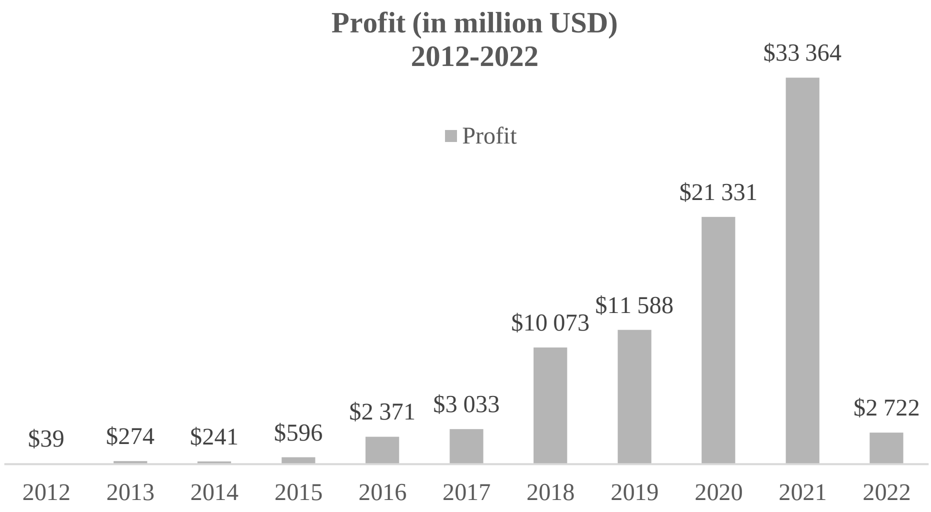

Figure 1. Amazon profitability

Source: (Pereira, 2023)

Moreover, by organizing yearly prize contests where research groups from universities compete in providing the best innovative ideas to develop and improve the Alexa cloud service along with collaborative communities, Amazon adopts an open innovation business model where clients' opinions are valued. We may conclude that by combining the two business models, Amazon has a combined business model called the Digital Open Innovation Business Model (DOIBM), which was defined in the theoretical part of this paper.

Amazon is an innovative company in its industry, and it will invest in innovative products and services which are profitable and advanced and in time, the company believes will bring more revenue. Open innovation and digitalization are two core values for Amazon, keeping up to date with machinery, the Internet, technology, and innovations from clients and research groups are very important for the company.

Results – Tesla case study

The global electric vehicle market is growing as in 2022 the market was valued at 330 billion dollars and in 2023 it is projected to grow to 388 billion dollars, while it is expected to reach 951 billion dollars in 2030 (MarketsAndMarkets.com, 2030). Due to increasing environmental awareness, government policies, and technology developments, electric cars have become a viable and sustainable transportation option (MarketsAndMarkets.com, 2030). The expected increase is based on advancements in battery technology, cost reduction, and more fast-charging capabilities. Tesla Inc. was founded in 2003, previously named Tesla Motors, and is a manufacturer of electric vehicles, solar panels, energy storage and power systems contributing to environmental issues with these products. The first electric car produced by Tesla was in 2008 and since then, the company has launched several new models on the market (Model S, Model X and others).

Tesla is using open innovation in its activity to develop new technologies and facilitate growth (Karamitsios, 2013). The company adopted three main strategic alliances: supplier alliances, R&D alliances, and alliances with other car manufacturers. Tesla conducted a design competition and it entered into a partnership with the winning company, Lotus. Part of this alliance, one of Tesla's vehicles is manufactured in the partner's plant in United Kingdom and the cars are stored there, reducing costs. The partnership with Panasonic provided Tesla with battery cells for cars and collaboration to develop new battery systems for future electric vehicles (Karamitsios, 2013). Another open innovation strategy used by Tesla is opening its patents starting with 2014 and completed the process of open sourcing the patents in 2019 (Wang & Peng, 2020). This opening is not unconditional, as Tesla requires the organizations to open their patents for products related to Tesla's patents (Wang & Peng, 2020). This open innovation approach has several advantages for the company (Ajaja, 2021):

- Creating the opportunity to open the mass production of electric vehicles
- Increase business opportunities for Tesla as the growth of variety of electric cars
- Global energy infrastructure growth: worldwide governments will be forced to develop the energy infrastructure at a faster pace
- Reducing internal costs as the innovations are externalized.

From the digital perspective, Tesla is involved in several technology partnerships and collaborations with several companies. For example, in collaboration with Re|Source, Tesla developed a blockchain system to track the supply chain of cobalt from producers to the factories (GlobalData, 2023). Moreover, artificial intelligence is a central point in Tesla's activity. Tesla Bot is a robot under development by Tesla to be used as a driver for electric vehicles. The company's engineers are working to improve the Dojo system in order to provide high-technology machine learning to be used internally and externally by clients., Autonomy Algorithms, also based on AI, are tools to create a high-fidelity representation of the world and predictive trajectories to help drivers on the road (Tesla, 2023). Cloud computing is used by the company to improve the autopilot of electric cars through feedback received in real-time while driving (Sangfor Technologies, 2022).

The organization takes advantage of social media to promote its products and leveraging the influence of its CEO Elon Musk in the online environment, helps Tesla gain brand awareness and reach millions of worldwide clients (Instagram – 9.5 million followers, YouTube – 2.38 million subscribers, LinkedIn – 10.9 million followers, Twitter – 75.5 million post views) (Armstrong, 2023).

In conclusion, Tesla has successfully implemented open innovation by forming alliances with suppliers, R&D companies and other car manufacturers to create new products. The company uses artificial intelligence, cloud computing, blockchain, and social media tools to obtain feedback from clients and to continuously improve their products. The Digital Open Innovation Business Model (DOIBM) implemented by Tesla leads to an increase in profitability and innovation in the automotive industry.

Conclusions

In a changing business environment, companies need to be in touch with their clients to create for them added value based on innovative and continuously improved products they offer using different digital tools to gather new ideas from stakeholders. The concepts of digitalization and open innovation have become more important in recent years and numerous companies implement these models in their business operations. Researchers defined the concepts of the digital business model and Open Innovation business model, however, with the latest advancements, a new model emerged, and it needed to be defined, the Digital Open Innovation Business Model (DOIBM). By implementing this concept into their operations, the businesses of Tesla and Amazon are growing with increasing profitability and they provide concrete methods in achieving this objective including clients or other companies as partners.

Both companies use artificial intelligence in their products and social media to improve their current portfolio and to obtain feedback from clients. Moreover, both Tesla and Amazon use cloud computing to store real-time information from customers to improve and add value to their products. At the same time, Amazon's cloud computing is one of the services sold by the organization. On the other hand, part of Tesla's strategy is to form alliances with various companies on the market with the purpose to innovate. An important aspect to be considered is Tesla's perspective to open its patents for usage by other organizations to broaden innovations in the EV industry.

The evolution and presentation of each concept provides a wider view on the model and why it is important for organizations to adopt. By studying the Amazon and Tesla cases, which use several digital tools in their operations along with adopting the Open Innovation concept to include stakeholders in the development and improvement of their products, it proves that DOIBM is useful and profitable.

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POZYSKIWANIE KLIENTÓW POPRZEZ CIĄGŁY ROZWÓJ TECHNOLOGICZNY – MODEL BIZNESOWY OTWARTYCH INNOWACJI CYFROWYCH

Streszczenie: W czasach niepewności w otoczeniu biznesowym organizacje muszą ukierunkować swoje wysiłki na strategie innowacji i przyjęcie modelu biznesowego opartego na cyfryzacji. Wszystkie postępy technologiczne zmuszają firmy do korzystania z cyfryzacji w zarządzaniu biznesem, do tworzenia instrumentów, dzięki którym mogą komunikować się ze swoimi klientami w celu ulepszania produktów i usług. Dzięki Modelowi Biznesowemu Otwartych Innowacji Cyfrowych organizacje mogą wywrzeć duży i ważny wpływ na rynek oraz mogą udoskonalić i zrewolucjonizować sposób, w jaki prowadzą swoją działalność. Istotnym aspektem funkcjonowania Modelu Biznesowego Otwartych Innowacji Cyfrowych jest uzyskiwanie przewagi konkurencyjnej nad konkurencją poprzez opracowywanie nowych produktów i usług lub doskonalenie obecnych. Biorąc za studia przypadków Amazon i Teslę, celem artykułu jest skupienie się na znaczeniu wdrożenia cyfrowego modelu biznesowego otwartej innowacji jako sposobu na osiągnięcie rentowności przez firmę i zapewnienie wartości dodanej dla jej klientów.

Słowa kluczowe: cyfrowy model biznesowy, digitalizacja, otwarte innowacje, otwarte strategie innowacji

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SERVICE QUALITY AND WORKER TRAINING IN 5-STAR HOTEL

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Abstract: The quality system of a hotel is based on policies, standards and protocols, which must be put into practice and defined to exert constant improvement in the quality of the services offered in each of its departments; On the other hand, training involves providing all hotel staff with techniques to improve the quality of services and in the same way provide human and economic growth to the company. The research aim is to analyze service quality and its relationship to worker training in a five-star HRHLC hotel; the case study of a hotel located in the tourist destination of Cabo San Lucas, B.C.S. in Mexico was used since it is an appropriate research design when one wishes to obtain concrete, contextual knowledge on a specific topic and allows one to explore the characteristics, key meanings and implications of the case. Information was collected through structured interviews and analysis of company reports. The results indicate that the hotel received an average rating of 8.8 regarding the perception of quality in service and customer attention, reflecting the fact that the hotel has an area of opportunity for improvement as being in a five-star category, the rating of quality service must be a minimum of 9.5. Regarding training, 100% of the staff received training on the use of the system, quality of service and safety and

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hygiene; 80% have been in the company for less than 6 months, reflecting the high staff turnover. In conclusion the five-star hotel and four-diamond chain needs to address areas of opportunity to improve the guests' perception of quality and obtain the 9.5 rating that this category of hotel requires, as well as improve working conditions to increase staff retainment.

Keywords: management, service quality, training

JEL Classification: M12, M10, M53

Introduction

The hotel sector is considered an essential part of the value chain of tourism activity since its infrastructure, capacity and service bring with it the ranking of the city as a world-class destination. Therefore, the fact that management ensures the hotel offers quality service becomes one of the most relevant elements in the development of tourism, that is, by generating quality, synonymous with satisfaction of guests, it produces sustainability of the city because there is an increase in the number of people of national and international origin attracted by the tourist destination. One of the factors that influences hotels to aspire to offer quality service in the industry is employee training since it seeks to professionalize the activity and thereby improve the requirements and offer excellent service to visitors.

According to the World Tourism Organization (UNWTO), 900 million international tourists traveled in 2022, twice as many as in 2021, although it remains 37% lower than in 2019. Regarding the economic contribution of tourism, it contributed 2.2%. to the global gross domestic product (GDP) in 2021 (OMT, 2023). While in Mexico, tourism reported 31.9 million international tourists, with an expenditure of 19,765 million dollars, 7.5% of GDP to the national economy (INEGI, 2022); total rooms of 867,328 units with an increase of 1.6% more than in 2020. Hotel occupancy in the group of 70 tourist centers was 41.2%, increasing 15.2% compared to 2020 (SECTUR, 2022).

The hotel sector has a special significance within tourism activity; it includes all establishments that are professionally and habitually dedicated to providing accommodation to people, at a price, with or without complementary services (Mestres, 1999). The hospitality industry requires trained workers with certain skills and abilities to meet customer demands. Personnel training is key to providing the hotel company with people who can develop in the best way and be capable of providing quality services.

Derived from the standardization of processes, services and amenities, quality evaluation systems emerge based on compliance with certain criteria in a list of offers that are considered minimum for certain levels in the hotel industry. The most common and current system is that of star classification, which increases the type, number and quality of services depending on the number – from 1 to 5 (SECTUR, 2023).

In Mexico, SECTUR (2023) points out that the Hotel Classification System (SCH) is a source of information that gives certainty to tourists, national and international, about the category held by lodging establishments in the country.

SCH is a methodological tool supported through a self-evaluation mechanism regulated by the Ministry of Tourism, which allows lodging establishments to know the situation of their facilities and services offered, as well as identify areas of opportunity, a fact through which they will be recognized by means of a category represented by stars. Each variable confers a score and the total is equivalent to a star category, except in the case that the tourism lodging service provider chooses to classify its establishment under the category of "without category" (SECTUR, 2023). For tourists, both national and foreign, SCH maximizes communicative clarity and simplicity by making use of the most common code in hospitality: the classification of hotels in a range of one to five stars, with half-star intervals. The number of stars intuitively reflects the type of offer that the hotel offers to its guests (Table 1), so that hotels with superior qualities also obtain a greater number of stars when evaluated.

Table 1. Hotel Classification System in Mexico with stars and their meaning

Total stars	Services offered by hotel, considering total number of stars
1	Essential
2	Basic services and infrastructure
3	Adequate facilities, complete and standardized service, without great luxuries
4	Luxury facilities and superior service
5	Exceptional facilities and services

Source: (SECTUR, 2023)

The research aim is to analyze service quality and its relationship with worker training in five-star HRHLC hotels. The case study of a hotel located in the tourist destination of Cabo San Lucas B.C.S. in Mexico was used. because it is an appropriate research design when one wants to obtain concrete, contextual knowledge about a specific topic and allows one to explore the key characteristics, meanings and implications of the case. The HRHLC hotel is a five-star hotel, it is part of an international chain operating in a local context in Mexico. Considering the reality it experiences helps to reveal deep and unknown meanings, as well as guide decision-making in relation to business problems, to report on complex realities, made invisible by everyday life, to understand internal processes and discover dilemmas and contradictions, helping to reflect on practices and understanding of reality. Yin (1994) points out that a case study is an empirical investigation that studies a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and its context are not clearly evident.

The HRHLC hotel is a five-star establishment and is aimed at a sun and beach tourism market. It is one of the three hotels of the RCD hotel chain in Mexico, classified as diamond with the all-inclusive boutique hotel concept. RCD Hotels has 35 brand hotels around the world, with a presence in 75 countries. It has operated in the all-inclusive mode, located in Cabo San Lucas B.C.S. Mexico since June 2019.

It has 5,017 square meters of meeting space – with a convention center, legendary musical memorabilia, Rock Shop and a music program (the sound of your stay), exclusive for hotel guests. It has 639 rooms, six restaurants, five pool and spa areas, basketball and tennis courts. It operates on three shifts. It has 48 departments and certifications such as the National Sanitation Foundation, Posi-check, Clean Point, Room check, Water check, among others.

Literature review

Hotel companies today are aware that in order to remain in the market, they must make radical changes to the quality of their service, not only towards their external clients, but also towards their collaborators. The services offered are perceived by both the tourist and the worker, with a different experience from the experience during the accommodation process. The concept of quality in hospitality is subjective since it depends on the person who receives it, who will estimate whether in his opinion it meets what he expected from the service. This implies challenges since it is necessary to consider the objective, tangible and measurable elements that allow us to become closer to that previous idea that the client brings (Veloz-Navarrete & Vasco-Vasco, 2016).

Juran (1990) points out that quality is the set of characteristics that satisfies the needs of customers and adds that quality consists in not having deficiencies as its adequacy is used to satisfy the needs of the customer. On the other hand, Kotler (1997) indicates that quality is any activity or benefit that one party offers to another; These activities and benefits are essentially intangible and do not give rise to ownership of anything. Their production may or may not be linked to a physical product.

According to Gronroos (1994), the expectations or quality expected by a subject are a function of factors such as marketing communication, recommendations, corporate image and customer needs. The quality received is influenced by the corporate image, and at the same time, by two components: technical quality and functional quality. Service quality is the result of an evaluation process, which is the perceived quality of the service, where the client compares their expectations with the perception of the service received, that is, this methodology depends on two variables, the expected service and the service received.

The key factors to achieve success are quality and efficiency in service and competitiveness at the business level. Providing quality service implies efficiency in communication and processes in all areas of the company. The service is diverse since the client or guest focuses their attention on dimensions of quality such as response time, courtesy, and atmosphere, among others (Matsumoto Nishizawa, 2014). Veloz-Navarrete and Vasco-Vasco (2016) point out that there are various approaches for the analysis of service quality (SERVQUAL, SERVPERF, DINESERV, LODGSERV, HOTELQUAL, HISTOQUAL), which agree that quality is addressed considering different dimensions such as the tangible aspect, reliability, responsiveness, security and empathy (Table 2).

Table 2. Comparison of approaches and original service quality indicators

Original Indicators	Scalar and Author	Dimensions
Staff	SERVQUAL, Parasuraman et al. (1988)	Tangibles, reliability, responsiveness, security and empathy
	SERVPERF Cronin and Taylor (1992)	Based on five dimensions of SERVQUAL model
Facilities and operation	DINE SERV Stevens et al. (1995)	Five dimensions of SERVQUAL model
	LODGSERV Knutson et al. (1990)	Dimensions of SERVQUAL model
	HOTELQUAL Falces et al. (1999)	Personnel, facilities and organization of service
Organization of service	HISTOQUAL Frochot and Hughes (2000)	Responsiveness, tangibles, communication, consumables, empathy

Source: (Veloz-Navarrete & Vasco-Vasco, 2016)

Competitiveness is a consequence of a market with a great deal of and very good supply that forces quality to be promoted as an added value; being competitive means giving more in the best conditions, at the right time and at an appropriate price (Gallego, 2002). For this reason, human resources are a fundamental element that will be supported by the material and financial resources required for such cases, but in all cases it will be the human factor that marks the route to be followed and the results to be achieved. The key to success in a hotel establishment is its staff.

The hotel as a service company must take care of two fundamental aspects for the development of human resources: training and motivation. On the one hand, the employee must be provided with the necessary knowledge to carry out his or her work (training) as well as continuous training within the job itself and complementary training outside of the daily routine. This is one of the most satisfactory and motivating actions, profitable both for the staff and the hotel. On the other hand, the employee must be stimulated (motivation) to ensure that they work in an environment of cordiality, which in general terms promotes their improvement and satisfaction at work, adequately carrying out their work and this is precisely having a recommendable organizational culture.

Chiavenato (2011) points out that training is a short-term educational process, applied in a systematic and organized manner, through which people acquire knowledge, develop skills and competencies based on defined objectives, while for Calderón (1997) training is conceived as a response to the lack of qualified personnel, the growing and accelerated process of organizational changes, the need to have prepared personnel and the prevailing challenge that man has as such. He also mentions that the importance of training varies; this depends on the point of view from which one sees it.

According to Werther and Davis (2000), training must be given to the worker during the hours of their work day, unless, taking into account the nature of the services, the employer and worker agree that it may be provided in another way, as well as in the case in which the worker wishes to train in an activity other than that of the occupation he or she performs, in which case, the training will be carried out outside the work day.

Training is delivered using various means, one of them is technology, which is used to offer the worker different techniques for training, considering the use (content-oriented, process-oriented, mixed), time (before or after admission), place (inside or outside the company), among others (Table 3).

Table 3. Classification of educational technology for training

Due to use (content)	Oriented Reading	Programmed instruction, computer-based instruction
	Process-oriented	Role play, sensitivity training, group development
	Mixed (content and process)	Case studies, games and simulations, conferences and various techniques at work
Due to time (season)	Before joining the company	Induction or integration program in the company
	After joining the company	Training on premises (in service) or outside workplace (out of service)
Due to location	In workplace	Training in tasks, job rotation, job enrichment
	Outside workplace	Classes, films, panels, cases, role-plays, debates, simulations, games

Source: Authors' own elaboration with data from Chiavenato (2011)

Research methodology

The research was carried out with the case study strategy since it is an appropriate research design when one wants to obtain concrete, contextual knowledge about a specific topic and allows one to explore the key characteristics, meanings and implications of the case. This methodology is mainly applicable in the analysis of social phenomena. Stake (1998) states that "it is the study of the particularity and complexity of a singular case, to understand its activity in important circumstances". The case study methodology is designed to delve deeper into a particular situation. For his part, Bell (2005) points out that this methodology provides the opportunity to study in depth a part of a certain problem with a time that is generally limited. The subject of analysis can be a phenomenon, a person, an event or a very specific case, where the analysis must be carried out within the environment in which the object of study develops (Muñoz, 2011).

The study addresses the case of a five-star hotel located in the tourist destination Cabo San Lucas B.C.S. in Mexico, considering the reality that exists in the reception department, which carries out its activities 24 hours a day, 365 days a year, with the participation of 48 collaborators. This department is important because it is the operations center for administrative procedures for the registration, entry and exit of the client. In this area there is the first and last contact with the client, in addition to offering the necessary support throughout the guest's stay. Likewise, customer satisfaction depends on the attention provided by the staff in this department and will be key to whether or not the customer returns to the establishment.

The study had a descriptive scope, which refers to a basic level but implies having a good base of prior knowledge about the phenomenon of study that seeks to describe subjective representations that emerge in a human group about a certain phenomenon, specifying characteristics and profiles of people, groups, communities or any other phenomenon that is subjected to analysis (Hernández & Mendoza, 2018) with a trans-sectional or cross-sectional research design, collecting data at a single moment, at a single time. Its purpose is to describe variables and analyze their incidence and interrelation at a given time (Hernández, 2014). With a qualitative approach, considering the fact that it is framed in the naturalistic scientific paradigm which, as Barrantes (2014) points out, is also called naturalistic-humanistic or interpretive and whose interest focuses on the study of the meanings of human actions and social life, implies a research approach to reality based on the study of situations in the same contexts where they develop, allowing the interpretation of reality phenomena by studying people. As Taylor and Bogdan (1984) point out, it is about resorting to a research methodology that allows us to understand the complex world of lived experience from the point of view of the people who live it.

Data collection was carried out through a structured interview with workers from the reception department of the HRHLC hotel, using a questionnaire with ten questions, as proposed by Hernández and Mendoza (2018) through a conversation between an interviewer and the interviewee, which was performed in order to obtain answers on the topic.

The study sample was a census sample that consisted of 48 employees of the reception department of the five-star hotel. The sample is considered census because 100% of the population was selected considering it a manageable number of subjects. In this sense, Ramírez (1997) establishes that the census sample is one where all the research units are considered as a sample. Hence, the population to be studied is specified as census because it is simultaneously universe, population and sample. Given that the population is small, the entire population was taken for the study and this is called census sampling. López (1998) believes that the census sample is that portion which represents the entire population. Additionally, reports about the department were analyzed, considering digital platforms such as TripAdvisor and Medallia, in which the guest rates the quality of the service they receive at the hotel. It should be noted that data collection through the client was limited since one of the company's policies is not to disturb the client and the client is only asked to complete an online satisfaction survey.

Research results

Service quality is the result of the customer's evaluation because it compares expectations with the perception of the service received. The criteria for ranking hotels include amenities, property quality, cleanliness, food services, entertainment, room variety, ease of access, and location, among others. The quality of service places a five-star hotel above its counterparts. The service must be consistent and exceptional. The staff must be highly-trained to meet guests' needs as they arise or anticipate them.

The information on the quality of service in the reception department of the HDHLC hotel was collected from the company's internal reports, generated on the platform and website that the hotel uses for contact with the customer, such as Medallia, TripAdvisor and social networks, among others. On these platforms, the guest posts opinions about their experience during their stay at the hotel.

In the case of Medallia, the metric reports show an average rating of 8.8 regarding the perception of quality of service and customer attention, reflecting that the hotel has an area of opportunity for improvement since being a five- star hotel, the rating of a quality service must be a minimum of 9. Likewise, on this platform, customer opinions were found such as: "the food needs better work", "need a better variety of food"; "the check-in clerk denied us and made us wait until 3 pm to check in"; "definitely doesn't sit right with me because the check-out time was 6 am"; "the quality and the variety of food needs to drastically improve", "it's supposed to be a 5-star resort, I've stayed at other 3&4-star resorts with way better food".

The TripAdvisor report reveals comments with guest experiences, such as:

"Semi-bitter: I go for an inspection visit for my wedding; I didn't like the lack of options for breakfast, despite there being 2 or 3 restaurants that are open for this, there is a lack of options. The waiting lists at the a la carte restaurants for dinner are very long. One day they close one and the guests crowd the open ones. Go line up from 5.30 pm so you have a good place reserved".

"Quality and good service: I stayed with my wife and daughter in a room with two beds and a crib (you have to request it) with a terrace and jacuzzi next to the pool and on the first floor. Excellent rooms, very elegant and with good details with drinks such as a bottle of tequila and chocolate (for being members), very good general cleaning and the room had a tablet to manage the TV. The hotel had a variety of restaurants and a good distance between them. The staff, the best, very diligent and attentive to any need and request; the opportunity for improvement: for greater excellence, solve issues such as a little delay/dirt from the pipe when filling the jacuzzi and some stains/scratches on the tables".

"Sergio is the Man: the staff have been amazing. The pool service by Eden pool has been the best we've ever experienced at an HT Resort. Sergio has been incredible and is a tremendous personality to have pool side. He is funny, charismatic and his willingness to talk and to laugh with pool side guests while serving an incredible amount of drinks has been a daily highlight for our group. Give the man a daisy card and he is in his element. »I highly recommend the strawberry, sexy with a little bit of spice«".

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Training staff in the hotel can increase guest satisfaction, which is why it is important to train workers as it contributes to improving service, speeding up the completion of tasks and improving the quality of the services provided. In this way, the customer tends to evaluate the place better, return frequently and increase recommendations to visit the company.

Regarding the training of staff at the HRHLC hotel, it was found that 60% of those surveyed collaborate directly at the reception, 30% perform the function of bellboy and 10% answer the telephones. Regarding job seniority, 50% have one to five months, 30% six months and 10% one to two years in the company. The interviewees point out that there is a lack of motivation since there are no incentives for staff, job dissatisfaction due to long working hours and multifunctional tasks owing to lack of personnel, days off that are not taken as a consequence of covering shifts on holidays, long response times that affect the service and low remuneration, among others.

In response to the question, When you joined the company and the department where you work, did you receive any training? 100% affirmed that they did receive training both when joining the company and in the functions for the development of their position. Regarding the frequency of the training that the worker receives, 60% indicated that it is every fifteen days, while 40% received training every month.

In reply to the question, Have you received training or a user manual for the Opera system? 60% of employees indicated that they had received training on the use of the Opera system, while 10% had not and 30% indicated that they would like to receive it (it should be noted that Opera is the most used property management system in hotels; it is used for reception management, room management, reservations, accounting, management, etc., using interfaces that help communication between departments and facilitate daily operations, and browsing the intranet. It allows one to view and/or change the status of each room, make charges, move them and/or close an open account, among others). Regarding the type of training related to customer service and attention, 80% of those surveyed responded that they received it and 20% indicate that they had not. 80% confirmed that the training was via in-person conferences at the hotel facilities and 20% indicated that they received training through courses or workshops outside the company.

In reply to the question: Have you received training or a user manual for the Nuvola system? 70% said yes, 10% no, and 20% indicated they would like to receive it (Nuvola is a cloud-based hotel operations software system for optimizing services and guest engagement from a single destination. An all-in-one system connects the back end to the front end, inherently developing a staff accountability system, providing cost savings opportunities for hotel leadership, and improving the guest experience through communication solutions for task management and guest messaging). Regarding the type of training, 80% received training on safety and hygiene practices and service quality, while 60% received training on the use of technologies, customer service and attention, while 10% received training on office parcel management.

Conclusions

Based on the results, it is concluded that a five-star hotel is an establishment tailored to demanding guests, service-oriented, with high standards of comfort. The quality of service places it above its counterparts; the service must be consistent and exceptional; the staff must be highly trained to meet customer needs, be attentive and intuitive, showing courtesy and interest in satisfying guest requests. Waiting times should be non-existent or at least short, with staff available 24 hours a day, 365 days a year. The hotel must promote a spirit of excellent service among its staff.

Regarding the quality of the service, an area of opportunity for improvement was identified as it was rated 8.8 by clients for service and customer service, which is a result below the minimum of 9.5 since it is an international chain hotel, classified with five stars and should offer an amplified standard of service and customer attention, that is, with renowned labels for the guest, with the purpose of making the customer feel important. In addition to the low rating, the clients' reports about the poor service received indicate that there are shortcomings that affect the quality of the service, which means that it is necessary to analyze the workers' capabilities, identifying whether they have the necessary training and service attitude since it is necessary to be prepared to meet the demands of the current client and the service offered by a hotel with five-star hotel characteristics.

For a hotel that operates with 70% to 97% occupancy all year round, staff training is one of the most important activities to guarantee so that the company functions better and there are better staff and manager relations, which improve teamwork. It is necessary to know the factors that influence the worker's behavior and that generate the perception of poor quality in the service. Although it is true that the staff receives training upon entering the company by the same staff, with topics related to the position and customer service, the fact that the majority have a maximum of five months seniority, indicates that the staff's tenure is short, with a lack of motivation, job dissatisfaction due to long working hours, multifunctional tasks owing to the lack of personnel, days off that are not taken as a consequence of covering shifts on holidays, long response times that affect the service and low remuneration, among others. Therefore, it is necessary to implement a model of excellence focused on the worker, which favors improvement of their conditions and increases retention in the company.

Quality in customer service is one of the essential points that must be met in a company that deals directly with customers, fulfilling the goal of maintaining preference in the hotel. This represents a process of continuous improvement in all areas of the company that have contact or can influence the satisfaction of customer needs or anticipating them. Therefore, the habit of interpreting customers' needs and expectations and offering them an agile, flexible, useful, safe and reliable service must be developed through training.

When hospitality industry employees have access to the necessary knowledge and put it into practice during their daily activities, decision-making and problem-solving are more effective. To ensure that clients feel satisfied during their stay, it is important that hotel staff have identified the work to be carried out and the knowledge of practical processes that improve the hotel's performance, which is why training is the master key in the hotel industry. In summary, the five-star and four-diamond chain hotel needs to address areas of opportunity to improve the guests' perception of quality and obtain the 9.5 rating that this category requires, as well as improve the working conditions to increase worker retention.

In service-providing companies, the behavior of employees takes on special relevance; if a customer is confronted by a tactless employee, all the company's efforts will be fruitless. Organizations linked to tourism sell quality, which makes them dependent on the attitudes and motivation of their workers and personnel management.

The human component within organizations has a first-order role, recognizing that equipment and capital are no longer the main resources, giving way to innovation and adaptation to change as the central axis for business development and in which man represents the key to organizational success. For this, it is important that companies have competent people, with certain knowledge, skills, motivations, and commitments to take advantage of their potential and generate value, likewise, evaluate the functions performed by staff in five-star hotels and place greater emphasis on training in order to generate motivation and enthusiasm among human resources.

This research addressed the case study of a company providing accommodation services, which means that the findings correspond to a specific reality and do not allow generalization, thereby identifying as a future line of research the realization of the topic with a quantitative approach, considering five-star hotels at a regional, national or international level.

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JAKOŚĆ USŁUG I SZKOLENIE PRACOWNIKÓW W 5-GWIAZDKOWYM HOTELU

Streszczenie: System jakości hotelu opiera się na zasadach, standardach i protokołach, które muszą być wprowadzone w życie i zdefiniowane w celu ciągłego podnoszenia jakości usług oferowanych w każdym z jego działów. Z drugiej strony szkolenie polega na zaproponowaniu wszystkim pracownikom obsługi hotelowej technik poprawy jakości usług i tym samym przyczynia się do rozwoju pracowników i rozwoju przedsiębiorstwa. Celem badania jest analiza jakości usługi i jej związku ze szkoleniem pracownika 5-gwiazdkowego hotelu w Los Cabos, BCS. Badanie przeprowadzono z podejściem ilościowym, informacje zebrano, wykorzystując ankiety dla pracowników recepcji oraz na podstawie analizy dokumentów firmowych. Wyniki wskazują, że klient ocenia jakość usług wysoko, średnio na poziomie 8,8, obsługa klienta w usługach takich jak check-in-out, wyżywienie wyniosła 9. Okazało się, że 100% pracowników zostało przeszkolonych w zakresie korzystania z systemu jakości usług oraz bezpieczeństwa i higieny; 80% pracowało w firmie przez 6 miesięcy, co odzwierciedla dużą rotację pracowników. Można wnioskować, że 5-gwiazdkowy hotel i sieć 4-diamentowa powinny skupić się na możliwościach poprawy postrzegania jakości przez gości i uzyskać ocenę na poziomie 9,5, której wymaga ta kategoria, a także poprawić warunki pracy w celu zwiększenia trwałości zatrudnienia pracownika.

Słowa kluczowe: zarządzanie, jakość usług, szkolenia

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THE ENTREPRENEUR WOMAN: CHALLENGES AND OPPORTUNITIES

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Abstract: In recent years, female entrepreneurship has increased considerably on a global and national scale, and Sinaloa is no exception. The contribution of women entrepreneurs to local economic development is recognized, however, information on female entrepreneurship is scarce. The aim of this article is to identify the characteristics of women entrepreneurs and their participation in the local economy in the state of Sinaloa, Mexico. An exploratory descriptive analysis of female entrepreneurship in Sinaloa was carried out. This research was conducted through secondary sources in order to investigate the characteristics from a qualitative approach. The main findings show that the female entrepreneur has capabilities that influence their entrepreneurship: work experience, they generally undertake entrepreneurship for socioeconomic needs (support for family income, improve standard of living), self-employment, new opportunities or increased income; family or friends are the main source of financing. In conclusion, the growth of female entrepreneurship is a natural evolution in the role of women in the labor force of our society. However, the main motivation that prevails is the need to obtain sources of income; likewise, women are able to perceive opportunities to be undertaken, although they are influenced by the fear of failure.

Keywords: entrepreneurship, female work, women

JEL Classification: J23, J16, J21

Introduction

Since the end of the last century, there has been special interest in studying and understanding the role that entrepreneurs play in the economic and social development of a country. Several countries have modified their public policies in order to

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encourage the creation of more and better companies to improve the business ecosystem in this way; they resort to campaigns and programs that encourage and promote the creation of new businesses, making it easier to obtain support and sources of financing, modifying educational models in educational institutions, and addressing the issue of revitalizing the entrepreneurial ecosystem from different fronts.

The participation of women in the productivity of Mexico is changing gradually with their involvement in the labor market in an increasing way in the last decades, and in different sectors, the main one being services due to the flexibility in their schedules as it allows them to carry out home and work activities simultaneously. Owing to the growing supply of labor and the lack of employment, both men and women find it necessary to create their own source of work. Women who work in the service sector do so mainly by developing their own activities, which makes them small entrepreneurs, but generally their businesses do not grow because some of them only see it as a complementary activity to their household income.

In Mexico, it is estimated that 52% of the gross domestic product (GDP) per capita is contributed by small and medium-sized enterprises (SMEs) and female entrepreneurship could represent one of the greatest advances in recent years (INEGI, 2022). Nevertheless, the Organization for Economic Cooperation and Development (OECD, 2020) identified that 21% of businesses are led by women. This is despite the fact that, according to INEGI data, 37% of the country's economically active population (EAP) belongs to the female gender. There are different reasons why this situation has arisen, the reality is that even when women have been increasingly integrated into the workplace, certain stereotypes are still maintained that direct them towards certain branches.

The unemployment rate in 2019 was 3.7% (pre-pandemic rate), while for 2020 it increased to 5.2% as a result of the COVID-19 crisis, and in 2021 the rate decreased to 4.2%. This implies that around 2.5 million people were unemployed, coupled with a labor market with high levels of informality. The EAP was 58.3 million people in 2021, 4.7 million people higher than in 2020, identifying the need to promote and develop productive activities that contribute to the generation of jobs (INEGI, 2021c).

Regarding the research gap, entrepreneurship emerges as an option that allows Mexican women to combine unpaid domestic and care tasks with the need to generate their own income. This path became particularly relevant during the pandemic, in which the most affected economic sectors were those with the highest concentration of the female workforce. In March 2021, female entrepreneurs represented 26% of all employed women in Mexico, 82% of them operated informally, were employed in a company without legal recognition (Mexican Institute for Competitiveness, A.C., IMCO, 2021). Informality tends to be related to lower levels of productivity, lower wages and a lack of access to tools that allow businesses to grow or access new markets, while formality offers the opportunity for benefits such as financing and training to consolidate enterprises and economic autonomy.

The average Mexican entrepreneur is between 25 and 44 years old, is married, has one or two children, has a high school level of education, and operates informally for three main reasons: the high cost of administrative procedures (in time and money); lack of access to finance and lack of training in finance, accounting or business development; the average income of formal entrepreneurs is 2.5 times more than those in the informal sector (INEGI. ENOE, 2021).

Mexican women perform most of the unpaid domestic and care work. This constitutes a barrier to their involvement in the labor market. Entrepreneurship then emerges as an option that allows them to combine these tasks with the need to generate their own income. This path became particularly relevant during the pandemic, in which the most affected economic sectors were those with the highest concentration of the female workforce.

According to the National Occupation and Employment Survey (ENOE) of the National Institute of Statistics, Geography and Information Technology (INEGI, 2021a), the average income of formal entrepreneurs is 2.5 times more than those in the informal sector.

Considering the above, the aim of the research is to identify the characteristics of women entrepreneurs and their participation in the local economy in the state of Sinaloa, Mexico. The study was carried out considering the periods of 2019, 2020 and 2021 (before and after the COVID-19 pandemic).

Literature review

The entrepreneurial concept has been addressed by different fields of knowledge where they are identified from their personal characteristics to different external factors that drive entrepreneurial activity. Jaramillo (2012) following Schumpeter (1934) defined the entrepreneur as an innovative person, who proposes and takes advantage of changes, basically in three areas: the introduction of new or better products and production methods; the opening of new markets and the reorganization of the administrative process. This conception allows some authors to affirm that innovation is the main element in the term of entrepreneurship because it represents a source of competitiveness and economic growth (Martínez & Rodríguez, 2013).

Theories about entrepreneurship have different perspectives. Within economics, Shumpeter (1934) argues that entrepreneurs are those who create new combinations, new markets, products or distribution systems. In turn McClelland (1989) focuses on the characteristics of the entrepreneur, mainly risk, achievement and desire for control. Aldrich and Martínez (2001) define the entrepreneur as someone who starts new activities with the intention of ending up with a viable business. For his part, Kirzner (2005) identifies entrepreneurs as those who make better use of information that allows them to discover opportunities in a way that others do not. De Bruin et al. (2007) define the entrepreneur as an individual who discovers, evaluates and exploits opportunities to introduce new goods and services, different forms of organization, markets, processes, raw materials and/or organizational efforts that did not exist before.

In all these examples it is assumed that the entrepreneur is generic and that its characteristics do not change, except when compared to the non-entrepreneur. From this precept there is no need to separate men and women since they are supposed to have the same characteristics. What is observed is that there are differences between women and men in terms of background, experience, education, needs and reasons for starting (Hurley, 1999).

Callejón (2009) mentions that the higher the proportion of entrepreneurs in a society, the higher the rate of innovation and growth. This has led many countries to implement financing and subsidy policies to support entrepreneurship, or to create and improve the entrepreneurial environment since for a region to increase its productivity and its competitive position, it requires the presence and promotion of two strategic factors: the entrepreneurial capacity of economic agents and the capacity for local innovation. Governments, especially in developing countries, have pinned their hopes on small businesses as generators of quality jobs (Vázquez, 2001; Carosio, 2004; Rusque, 2005; Jaramillo, 2012).

The training of entrepreneurs and new companies is a priority when it comes to promoting the economic and social development of countries; therefore, it is necessary to determine what their contribution to these objectives is. Entrepreneurship is important for its positive effects on job creation and economic growth. Entrepreneurship is a structural characteristic of Latin American economies, in part, as a response to the high levels of unemployment that the region faces and that through self-employment, becomes an alternative to obtain income. In Latin America, 28.7% of EAP is self-employed, 54.8% is salaried and 4% is an employer. In particular, 19% of Latin American youth are in informal employment, while 20% neither study nor work (OECD/ECLAC/CAF, 2016).

Van Stel, Carree and Thurik (2005) found that the effect of entrepreneurship on economic growth depends on the level of per capita income, that is, entrepreneurship plays a different role in countries according to the different stages of economic development in which they are. Thus, countries with lower income levels develop more entrepreneurial activity than countries with high incomes, as well as richer countries (Minniti, 2012).

For Neck, Brush and Allen (2009), the main objective of an entrepreneur is not to generate private value, but to generate a social impact in a community or an excluded social group such as indigenous people, Afro-descendants, the elderly and women. In the latter case, research has been carried out since the 1980s on the reasons that lead women to start a business, focusing on areas of identification such as motivation factors and differences in starting businesses between men and women, although they emphasize that women in reality have different motives influenced mainly by the search for a balance between work and family (Carrier et al., 2008).

Castiblanco (2013) found that studies on female entrepreneurship from the 1990s focused on fundamental factors for its understanding. The first group sought to identify the sociodemographic characteristics of women entrepreneurs. Secondly, differences were identified between men's and women's enterprises. Third, we sought to understand how the context can affect the decision to start a productive activity and how the cultural definition of gender plays a preponderant role in that decision.

Female entrepreneurship has a significant impact on economic development and poverty reduction; in developed countries, for example, it has been shown to impact GDP by around 5% to 7% (Heller, 2010). It is also observed that women who work and are entrepreneurs tend to invest their earnings to a greater extent in education, health and well-being in favor of their families, foster in their children the desire to learn how to prepare themselves and tend to promote the desire to excel, but in the 21st century they still face strong challenges for their full inclusion.

In the last decade, female entrepreneurship has grown throughout the world (Swinney et al., 2006). In Mexico, the female participation rate in business has increased in recent years. Several factors have been identified that contribute to this phenomenon (Guzmán & Rodríguez, 2018):

1. Easier access for women to education, which allows them to acquire a series of knowledge and skills necessary to face a business activity.
2. Greater participation of women in the labor market, which facilitates learning that allows them to evolve towards new business activities.
3. Rise of the services sector, which does not present excessive entry barriers and is one in which women have traditionally developed.
4. Complex national and international economic environment that obliges women to contribute to the income.
5. Social changes in the structure of the family such as the increase in the divorce rate and families raised only by women.

Specifically, the cases of Latin America and Mexico are not different from those of the rest of the world. Women have been taking positions in the economy and business. Around 35-40% of micro, small and medium-sized businesses are operated by women. Normally, these companies tend to be small in terms of sales and the number of employees, tend to focus on areas of commerce and/or services, and take less time to operate, but they still face numerous disadvantages, mainly regarding access to capital. Most obtain their financing from personal savings, and loans from friends and family, which limits their growth (Swinney et al., 2006).

Research methodology

The study was qualitative, considering the fact that this research approach is part of the naturalist scientific paradigm which, as Barrantes (2014, p. 82) points out, is also called naturalist-humanist or interpretive and whose interest "focuses on the study of the meanings of human actions and social life"; it implies a research approach to reality based on the study of situations in the same contexts where they unfold, allowing the interpretation of reality phenomena by studying people; as Taylor and Bogdan (1984) point out, it is about resorting to a research methodology that allows understanding of the complex world of lived experience from the point of view of the people who live it. With a descriptive scope, considering the fact that it refers to a level of depth that, although basic, implies having a good base of prior knowledge about the subject and phenomenon of study because it seeks to carry out phenomenological or constructivist narrative research that seeks to describe the subjective representations which emerge in a human group about a certain phenomenon, specifying characteristics and profiles of people, groups, communities or any other phenomenon that is subjected to analysis (Hernández, 2018). This research was conducted through secondary sources. The collection of information focused on the review of literature and reports from sources such as the National Institute of Statistics and Geography (INEGI), the Council for Economic Development of Sinaloa (CODESIN), the National Statistical Directory of Economic Units (DENUE), the Ministry of the Economy, among others in order to investigate the characteristics of the participation of women in female entrepreneurship as an object of study as documentary techniques consist of the identification, collection and analysis of documents related to the studied fact or context contemplating the participation of women in the economic activity of the state, as well as female entrepreneurship as an object of study. In this case, the information is not given directly by the people investigated, but through written, graphic, published works, with the characteristic of being documents from reliable sources.

It should be noted that the research was carried out using a qualitative approach, which means that it has limitations since its findings cannot always be generalized. Nonetheless, it is recognized that through this approach it is possible to generate a deep understanding of interactions, events and social processes of daily life, understanding the influence on social structure, social order and various social forces. On the other hand, the collection of information through secondary sources requires considering the fact that it is information generated from the analysis, reconfiguration and interpretation of documents published by various organizations considered as reliable sources in certain periods, with multiple interpretations, measures of different realities to the same concept as well as problems and difficulty in locating specific data according to what is being studied. It is also necessary to keep in mind that this research contemplated information from the years 2019, 2020 and 2021, corresponding to the state of Sinaloa, in Mexico.

The main research question was: what are the predominant characteristics of the female entrepreneur in the state of Sinaloa in Mexico and their participation in the local economy? To carry out the analysis of factors that motivate Sinaloa women to start a business, the conditions in which they join this activity are explored. This allowed us to observe the challenges and opportunities that women face in the development of new businesses.

This work consists of five sections, the first one reviews, through various authors, the concepts of entrepreneurship and female entrepreneurship. The second explains the methodology that was followed to achieve the objective of the work. In the third, the main results of the study are presented and finally, the conclusions and bibliographical references are presented.

Results

Socioeconomic aspects of Sinaloa

Sinaloa has an area of 57,365.4 km^2, which represents 2.9% of the country's area (INEGI, 2020), its territory is divided into 18 municipalities; their economic activities are concentrated in the tertiary (67%), secondary (21%) and primary (12%) sectors (INEGI, 2023).

According to INEGI (2021b), Sinaloa has a population of 3,026,943 inhabitants, of which 49.4% (1,495,310) are men and 50.6% are women (1,531,633), with a growth of 9.36%, compared to 2010. 76% live in urban localities and 24% in rural localities (nationally, 79% live in urban localities and 21% in rural ones). 75.32% are over 15 years of age and older, of which 36.83% (1,114,943) are men and 38.49% are women (1,165,096).

According to the Population and Housing Census (2020), the municipalities with the largest populations were Culiacan (1,003,530), Mazatlan (501,441) and Ahome (459,310), while the age ranges with the highest concentration of population were from 15 to 19 years (261,581 h), 10 to 14 years (260,172 h) and 20 to 24 years (256,990 h); in total they concentrated 25.7% of the population. Regarding schooling, in 2020 in the state, the average level of schooling of the population aged 15 years and over was 10.2, which is equivalent to a little more than the first year of high school (at the national level it is 9.7 grades of schooling) (INEGI, 2021b) (Table 1).

Table 1. Sociodemographic characteristics of Sinaloa

	Description	**%**
Population	Male	49.4
	Female	50.6
Place of residence	Urban	76
	Rural	24
Municipalities with largest population	Culiacan	33.1
	Mazatlan	16.5
	Ahome	15.2
	Primary	21.8
Education	Secondary	23.1
	Preparatory	25.1
	Degree	23.1
	Master's degree	1.1

Source: Data from 2020 Population and Housing Census by (INEGI, 2021b)

Socioeconomic data of Sinaloa disaggregated by gender

Regarding the profile of the inhabitants of Sinaloa and some of their socioeconomic characteristics, it was found that of the population aged 15 years and over, 25.1% studied in high school (12.4% female and 12.7% male), 23.1% graduated (11.9% female and 11.2% male), 23.10% secondary (11.9% female and 11.2% male), 21.8% primary (11.2% female and 10.6% male), 1.1% master's degree (.55% female and .55% male) (Table 2).

Table 2. Inhabitants and their level of schooling in Sinaloa by sex in % (2020)

Male	Female	Total	School level
12.7	12.4	25.1	Preparatory
11.2	11.9	23.1	Degree
11.2	11.9	23.1	Secondary
10.6	11.2	21.8	Primary
0.55	0.55	1.1	Master's degree

Source: Data from 2020 Population and Housing Census by (INEGI, 2021b)

Regarding housing, in Sinaloa 854,816 inhabit private homes (nationally there are 35,219,141); 86.8% have running water inside the house, 99.4% have electricity and 84.1% have drainage connected to the public sewage system. 62 out of 100 households are of the nuclear type, while 35 out of 100 households (297,340 households) recognize women as a reference person, which means that they are considered the head of the family (nationally there are 33 out of 100 households), and in 65% the reference person is a man (557,476 households). Regarding the age ranges of the reference persons, 11.3% of the dwellings have heads of household between 45 and 49 years of age. At the national level, Sinaloa ranks fourth for its percentage of households with a female reference person (INEGI, 2021b).

In Sinaloa, EAP in the fourth quarter of 2021 was 1,396,279 people (56.8% of the total population), of which 1,342,383 were employed (38.4% women and 61.6% men) (Secretaria de Economia, 2022) (Table 3). By 2021, 43 out of every 100 women aged 15 and over were economically active.

Table 3. Economically active population and employed population in Sinaloa, 2021

	Total inhabitants	Male	Female
Total population	3,026,943	49.4%	50.6%
EAP	1,396,279	57%	43%
Working population	1,342,383	61.6%	38.4%

Source: Data from DataMexico Sinaloa by Ministry of Economy (Secretaria de Economia, 2022)

Regarding the evolution of EAP both for men and women, it fluctuated from 2011 to 2021 from 789,000 (78.5%) to 847,000 (71.9%) men, while for women it went from 484,000 (45.5%) to 533,000 (42.6%), with an outstanding reduction in 2020 of 798,000 (69%) of men and 463,000 (38.9%) of women. Regarding the employed population from 2011 to 2021 by gender, the total number of men went from 758,590 to 826,615 and of women it went from 467,365 to 515,768 with a decrease in 2020 of 745,971 men and 447,970 women (Secretaria de Economia, 2022). The behavior is similar, with a downward trend in the case of EAP and an upward trend in the case of the employed population and with a slightly abrupt change derived from the effects of the COVID-19 pandemic.

Participation of women in the economic life of Sinaloa

In 2019, of the total number of women who worked or were looking for work in Sinaloa (497,900), 487,097 were employed and 10,803 unemployed. Of the employed women, 79% worked in the commerce and services sector and with an average income of $7,699.00 (with a salary gap of $1,045.00 less per month than the salary of men), while for 2021, of the total number of women in Sinaloa, 568,078 are women who worked or were looking for work, of which 553,418 were employed and 14,660 unemployed, 82% were employed in the commerce and services sector, with an average income of $6,992.00 and for the year 2022, 533,388 women work or were looking for work, of which 515,768 are employed and 17,620 are unemployed, corresponding to 77.2% employed in the trade and services sector, with an average income of $7,895.00 ($1,937 pesos per month less than the salary of men – 115 dollars approximately) (Codesin, 2021b, 2022a) (Table 4).

Table 4. Employed and unemployed women in Sinaloa (2019, 2021, 2022)

Year	Working or looking for work	Employed	Unemployed	Working in commerce and services	Average income
2019	497,900	487,097	10,803	79%	$7,699
2021	568,078	553,418	14,660	82%	$6,992
2022	533,388	515,768	17,620	77.2%	$7,895

Source: (CODESIN, 2021b, 2022a)

The participation of women active in the labor market went from 39.5% in 2019, to 37.8% in 2020 and 38.4% in 2021, while in the case of men for 2019 it was 60.5%, for 2020 it was 62.2% and 61.6% in 2021 (CODESIN, 2022a).

Of the personnel employed in the informal sector, 55% are men and 43% are women, while the impact on participation, in the case of women, was reduced from 22.7% to 21.9% and in the case of men, it increased from 20% to 22.4% (CODESIN, 2022b).

Regarding entrepreneurship in Sinaloa, in 2019 56% of all entrepreneurs are women, 10,305 employers in Sinaloa are women (12% of the total of 86,408), while in 2021 the total number of female employers in the state was 21,149 (20% of the total of 106,378) (CODESIN, 2021a).

The main reasons indicated by Sinaloa entrepreneurs for opening a business in 2019 and 2021 were out of necessity, self-employment, seeking new opportunities in the world of work, and increasing their income (INEGI, 2021a) (Table 5).

Table 5. Reasons to become entrepreneur (2019-2021)

Reasons to become entrepreneur – women in Sinaloa	2019	2021
1. Increase in income	20%	30%
2. Necessity	30%	28%
3. Self-employment	28%	22%
4. New opportunities	22%	20%

Source: (INEGI, 2021a)

Conclusions

The main opportunities in female entrepreneurship have focused on creating new businesses at the micro and small business levels including within informal commerce. Most of the women who want to start a business do so from a small business, during the entrepreneurship process they face a lack of financial support to start their business since many of them do not have a credit rating. In the growth stage, they also face difficult situations, ranging from performing multiple functions within the company, not receiving a fixed salary, and marketing their products and services as a task that will allow them to position themselves in the market.

The COVID-19 crisis further affected the participation rate of women as from 2019 to 2020 it caused a 12% decrease in employed women; 66,321 women lost their jobs or stopped working. By 2021, pre-pandemic levels were not reached since only 28,671 women managed to rejoin the labor market, 12% below the male reincorporation. Reducing the gender inequality gap in economic life is one of the challenges for women in Sinaloa and with the COVID-19 pandemic it became more evident; the wage gap still persists as they earn 20 percent less a month, than men. Another noteworthy fact of the situation is that despite the fact that the level of education is higher in women, it is still men who hold managerial positions because despite the fact that 55% of women have superior secondary education, of more than 144,000 management positions in the state, only 21,000 are held by women. The contribution of women to Sinaloa's GDP is reflected in their high labor participation in the commerce and services sector, which is the one that generates the most value for the entity.

In Mexico and Sinaloa, the rate of female participation in business has increased in recent years due to factors such as greater access for women to education, increased participation in the labor market, the environment that forces women to contribute to the income and social changes in the family structure (divorce rate, families raised by women, among others). Female entrepreneurship has a significant impact on economic development and poverty reduction. It is also observed that women who work and are entrepreneurs tend to invest their earnings to a greater extent in education, health and well-being in favor of their families, foster in their children the desire to learn how to prepare themselves and tend to promote the desire to excel, but still they face strong challenges for their full inclusion.

Regarding challenges, most women who want to start a business do so from a small business because of the financial situation in which they find themselves; during the entrepreneurship process, they face a lack of financial support to start their business as many of them do not have a credit rating. In the growth stage, they also face difficult situations, ranging from performing multiple functions within the company, not receiving a fixed salary, and marketing their products and services as a task that will allow them to position themselves in the market.

The entrepreneur is identified as a person who proposes and takes advantage of changes, considering the fact that innovation represents a source of competitiveness and economic growth, encouraging governments to be willing to implement policies to support women entrepreneurs, both financing and support subsidies. With the training of entrepreneurs and the creation of new companies, entrepreneurship is important for its positive effects on job creation and economic growth.

The characteristics of female entrepreneurship have been changing according to current global and social conditions; these activities give fundamental weight to entrepreneurship from the social and economic dimensions, motivating women to find a balance between work and family. For women, the service sector is the main option to develop their entrepreneurial spirit resulting from the flexibility in their schedules as it allows them to carry out their home and work activities simultaneously; identifying future lines of research such as the study of service companies with the greatest participation of female entrepreneurs, the factors that stimulate formal female entrepreneurship, the motivation of women to undertake, administrative management in female entrepreneurship, and comparative analysis of female entrepreneurship, among others.

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KOBIETA PRZEDSIĘBIORCZA W SINALOA: TOŻSAMOŚĆ I WYZWANIA

Streszczenie: W ostatnich latach przedsiębiorczość kobiet znacznie wzrosła w skali globalnej i krajowej, a Sinaloa nie jest wyjątkiem. Uznaje się wkład kobiet-przedsiębiorców w lokalny rozwój gospodarczy, jednak brakuje informacji na temat przedsiębiorczości kobiet. Celem badania jest analiza przedsiębiorczości kobiet i ich udziału w lokalnej gospodarce Sinaloa. Badanie zostało przeprowadzone z zastosowaniem podejścia jakościowego, zakresu opisowego, ponieważ główną techniką gromadzenia danych była analiza dokumentów z uwzględnieniem raportów z różnych źródeł informacji. Główne rezultaty pokazują, że kobieta-przedsiębiorca ma możliwości, które wpływają na jej przedsiębiorczość: doświadczenie zawodowe, które zazwyczaj podejmuje na potrzeby społeczno-ekonomiczne (wsparcie dochodów rodziny, poprawa standardu życia), samozatrudnienie, nowe możliwości lub zwiększenie dochodów; rodzina lub przyjaciele są głównym źródłem finansowania. Podsumowując – wzrost przedsiębiorczości kobiet jest naturalną ewolucją roli kobiet w sile roboczej naszego społeczeństwa. Stwierdzono jednak, że szkolenia, konkurencja i finansowanie stanowią główne wyzwania, przed którymi stoją. Zatem konieczne jest wzmocnienie rządowych programów promujących udział kobiet w życiu gospodarczym Sinaloa.

Słowa kluczowe: przedsiębiorczość, kobieta-przedsiębiorca, tożsamość

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PECULIARITIES OF SHADOW ECONOMY IN CRISIS CONDITIONS IN UKRAINE

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Abstract: The article contains an analysis of the shadow economy at the time of quarantine restrictions and of Russia's full-scale invasion of Ukraine using statistical, analytical and functional methods of scientific research. The aim of the study is to generalize the theoretical and methodological aspects of the shadow economy, to study the current state of shadow economy escalation in the conditions of quarantine restrictions and Russia's full-scale invasion of Ukraine, and to systematize possible ways of legalizing the economy. Such a socio-economic process as the shadow economy, represents a number of shifts in the state budget structure, in particular regarding the indicator of tax revenues. In the conditions of crisis, the shadow economy can become both a driving force for balancing the economy and a threat, not only economic, but also a social one. In this article, this issue will be considered in more detail. Therefore, the dynamics of changes in the shadow economy has been considered both according to certain methods of assessing its level to the official GDP volume, and also by various economic sectors during the quarantine restrictions according to the data of the Ministry of the Economy of Ukraine. A diagram of the shadow economy factors was also developed and possible effective changes were proposed to overcome them, from which it is clear that the shadow economy needs not only a perfect assessment and specific data for its analysis, but also improvement of the management system, quality of public services and the readiness of people to come out of the "shadow".

Keywords: salary, shadow economy, shadow employment, shadowing, taxes

JEL Classification: O17, E26, H26

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Introduction

Ensuring sustainable economic development is typically one of the key objectives of state regulation. The concept of the shadow economy is being modified worldwide, including in Ukraine, which is objective and requires an understanding of the peculiarities of its mechanism. The shadow economy is a complex process that is undergoing significant expansion and affects all sectors of the economic segment in Ukraine. The aim of this article is to analyse the trends of shadow economy development using four calculation methods, characterize the peculiarities of the shadow economy in the crisis situations in Ukraine, and consolidate the factors of the shadow economy and their changes in the post-war period to improve the economic situation in Ukraine.

This article presents statistical calculations within the years 2015-2021 using four calculation methods for the shadow economy approved by the Ministry of the Economy of Ukraine. These methods include the electric method, monetary method, population expenditures – retail turnover and services method, and the method of loss-making enterprises. According to these calculations, we can understand that the shadow economy in 2021 increased according to the electric and monetary methods, while it decreased according to the other two methods. However, the integral indicator of the shadow economy suggests that the shadow economy in 2020 and 2021 remained stable at 31%, possibly due to the pandemic situation and quarantine restrictions (Ministerstvo ekonomiky Ukrainy, 2022).

Another important indicator is the level of illegal trade in tobacco products, which increased during the war in 2022 (20.1%), compared to 2020 (5.7%) and 2021 (14.7%). The level of alcohol production also increased in 2022 (36%) compared to 2021 (34%), while the level of fuel showed a tendency to decrease from 27% in 2020 to 11% in 2022 (CASE – Ukraina, 2023).

Consequently, this process attracts the attention and interest of numerous economists and tax authorities. This happens because the shadow economy develops rapidly and inflicts devastating blows on the real economy of the country, particularly during the war. An analysis of foreign and domestic sources regarding the definition of the term "shadow economy" confirms that there is no single concept, and each scholar has their own explanation of this phenomenon.

Literature review

Definition of the term "shadow economy"

The definition of the term shadow economy is discussed in the works of many foreign and Ukrainian scholars. It is known that in economy literature, the term shadow economy has different concepts depending on the characteristics provided by specific researchers. Furthermore, there is no single definition for this concept, and it is important to systematize the following opinions of the authors.

For example, Dallago (1991) considers the shadow economy to consist of illegal, hidden, and unofficial economic activities. The main types of the shadow economy include (Dallago, 1991):

1. Smuggling, illegal gambling, drug trafficking, prostitution, fraud, theft, misappropriation of funds obtained by means of loans.
2. Hidden rental income, concealed employment, work without licenses, illegal residence of foreigners, employment of retirees and individuals receiving unemployment benefits.
3. Concealment of transactions, under-the-table payments, self-employment.
4. Bartering of goods and services.
5. Gardening, horticulture, sale of homemade or artisanal products.

K. Hart (2006), who formulated the concept of the informal economy, initially encompassing only the "informal sector", recognized the evolution of his concept, considering the fact that the informal economy is now seen as a universal feature of industrialized countries and includes everything from subsistence household activities to criminalization of the economy. One of the first to provide a definition of the shadow economy was Feige (1979). According to his interpretation, the shadow economy refers to all economic activities that, for any reason, are not taken into account and do not enter the gross national product.

Most foreign scientists prefer the notion that the shadow economy is an invisible economy that is not included in statistical reporting, and therefore not in the GDP. This assertion is supported by the views of the American economist Gutmann (1977), who emphasizes the impossibility of disregarding unrecorded activities in developed countries. In other words, the actual economic activity is larger than what is officially registered. For Gutmann (1977) and Feige (1979), the shadow economy (which they referred to as the "underground economy") is the unaccounted portion of the GDP that should be added to economic activity.

For Tanzi (1983), the shadow economy, also referred to as the underground economy, refers to income that is not reported to tax authorities. It is precisely these discrepancies in the formulations that Tanzi himself pointed out when explaining the differences in the estimated indicators of the shadow economy.

According to Frans (1992), the shadow economy is activity that is not included in the GDP due to a lack of a methodological basis for accounting for the illegal production of goods and services. Its components include hidden activities of self-employed and employed individuals working in addition to their official employment.

Medina and Schneider (2018) use the following definition: the shadow economy includes all economic activities which are hidden from official authorities for monetary, regulatory, and institutional reasons. Monetary reasons include avoiding paying taxes and all social security contributions; regulatory reasons include avoiding governmental bureaucracy or the burden of the regulatory framework, while institutional reasons include corruption law, the quality of political institutions and weak rule of law.

According to Baklouti and Boujelbene (2020) the shadow economy, also known as the informal, illegal, black, or underground economy, consists of economic activities that fall outside the formal or legal economy.

The shadow economy is the visible and measurable tendency to bypass the state, whereas informality is the framework allowing us to explain and understand why people are willing to remain in the shadow, avoid the state, not to respect state authority and in general bypass the state (Polese, 2021).

One of the first Ukrainian scholars to study the shadow economy was Turchynov (1995). He proposed a definition of the shadow economy as an economic activity of economic entities (individuals and legal entities) that is not recorded, controlled, or taxed by official government bodies and/or aims to generate income by violating existing legislation. This definition quite accurately reflects this economic category. Mandybura (1998) examines the shadow economy from the perspective of a narrow and broad spectrum, namely:

a) in a narrow sense, the shadow economy is limited to those types of economic activity and corresponding relations that are either illegal or socially dangerous (which, in practice, do not always coincide);
b) in a broad sense, the shadow economy includes:
   - the household sector (the sector of subsistence production);
   - the informal sector (unregulated activities – small-scale production, services, trade, the "grey economy");
   - the "dark-grey" sector (concealed sector of legitimate economic activities),
   - the "black" sector (criminal, "illegitimate");
   - diversified components of the black economy.

These distinctions provide a more comprehensive understanding of the various dimensions and components of the shadow economy.

Lamanova (2000) believes that the shadow economy is a set of relations between individuals, groups of individuals, individuals and institutional units, and individual institutional units regarding the production, distribution, redistribution, exchange, and consumption of material goods and services, the results of which are not accounted for by official statistics for various reasons, and the amount of which is not included in macroeconomic indicators.

Zasanskyi (2003) postulates that the shadow economy functions as a sphere of activity related to the relationships between people in the processes of production, distribution, exchange, and consumption, based on social opposition to the main macro-management mechanisms and their functioning outside of managerial control and accounting, with the aim of evading income taxation. This definition of the phenomenon has a one-sided nature as it only reveals it from the perspective of managerial positions.

On the one hand, Mazur (2006) defines the shadow economy as a complex socio-economic phenomenon represented by a combination of uncontrolled and unregulated economic relations, both illegal and legal but immoral, between economic agents regarding obtaining additional profit through income concealment and tax evasion. On the other hand, Mochernyi (2002) believes that the shadow economy is a sphere of economic activity aimed at generating income from prohibited activities or evading social (governmental) control and tax payment in the implementation of legal economic activities.

Naumov, Hryshova and Davydiuk (2016) state that the shadow economy emerges when the actions of government and regulatory structures, individual people, or their groups contradict objective economic laws.

Another researcher defines the shadow economy as a complex socio-economic phenomenon characterized by a combination of uncontrolled and unregulated economic relations among economic actors, involving both illegal and legal but immoral activities, aimed at obtaining excess profits by concealing income and evading tax payments (Varnaliy, 2006).

The shadow economy has three components: informal, hidden and underground (criminal) economies. The informal economy is characterized by the unregulated production of goods and provision of services; the hidden economy is the legal production and selling of unregistered goods and services; the underground (criminal) economy – prohibited activities (corruption, drug trafficking, etc.) (Buha et al., 2023).

The analysis of all those interpretations confirms the fact that the shadow economy is a complex economic category as no definition is repeated and none can fully and accurately reveal its essence.

Problems of shadow economy

In today's reality, it is confirmed that the shadow economy leads to a reduction in the volume of the state budget, a decrease in financial security, and creates inconsistency in the overall economy of the country as well as the adoption of inadequate governance decisions. Undoubtedly, the aforementioned problems are extremely significant and require solutions that cannot be achieved without a proper understanding of the scale and dynamics of the shadow economy.

Significant discrepancies in assessing the level of the shadow economy are due to different principles of defining the concept of the shadow economy and assessment methodologies. Various origins of the term shadow economy as mentioned earlier in the article, including the shadow economy (Mandybura, 1998; Mochernyi, 2002), the underground economy (Tanzi, 1983), the hidden economy (Gutmann, 1977), the illegal economy (Portes & Boroz, 1988) and the informal economy (Hart, 2006), offer diverse interpretations and existing estimates.

Consequently, the assessments of the level of the shadow economy are not always the same as they may be calculated based on different interpreting concepts of the economy (legal economy, officially defined indicators of economic activity, or the entire economy of the country). Currently in Ukraine, there is no universally accepted unified method (Verkhovna Rada Ukrainy, 2009) for measuring the shadow economy.

Nevertheless, researchers continue to refine and expand the basis for assessing the shadow economy. In addition, the concealment of economic activities from state control and taxation is a consequence of an imperfect system functioning in the country, which in turn encourages businesses to engage in shadow employment. Hence, one of the fundamental tasks of reforms in Ukraine is formalization of the economy, which is also an important issue in the study of this topic. Experts consider it one of the top priorities for economic growth in Ukraine. However, the potential for such growth is assessed by them within a wide range, which is due to different estimations of the level of the shadow economy.

It is worth noting that a level of shadow economy ranging from 10-12% of the main GDP is considered normal, while 20% is deemed critical for the overall economy. A catastrophic level is considered to be in the range of 40-50%, as conflicts between legal and shadow businesses are observed in almost all spheres of societal life. In such cases, it is not the state that controls the economy, but rather the shadow structures (Pryvarnykova, 2010).

Traditional shadow economy measurements allow some socio-economic phenomena correlated with low state efficiency to be quantified. Nonetheless, the causal relationship is not always clear nor whether non-compliance stems from the perceived state inefficiency and the idea that abiding by the rules leads to nothing good or it can be avoided, or the opposite, that state inefficiency happens because of citizens' behaviours and attitude (Polese et al., 2022).

Statistical calculations of the shadow economy in Ukraine

In order to make an integral assessment of the level of the shadow economy in Ukraine, several methods are used, the averaged value of the results of which represents a characteristic of the state and trends of shadow economy development. The most acceptable methods for determining the volumes of the shadow economy under the conditions of available statistical data are the following: population expenditure – retail turnover and services, financial, monetary, and electricity methods. The method of loss-making enterprises is applied to estimate the minimum and maximum coefficients within which the level of the shadow economy is situated (Verkhovna Rada Ukrainy, 2009).

Calculating the level of the shadow economy using the population expenditures – retail turnover and services method involves identifying the excess consumer monetary expenditures by the population on purchasing goods over the total sales volume of goods to the population by all economic entities in the legal sector of the economy. Calculating the level of the shadow economy using the financial method involves determining trends in the change of proportions between the value of goods, works, and services used in the production process, and the gross income of enterprises (economic associations), institutions, and organizations in the country as a whole or in another type of economic activity. Calculating the level of the shadow economy using the monetary method involves determining trends in the change of the ratio of cash to bank deposits during the analysed period compared to a base period, which is taken as the year 1991 (Verkhovna Rada Ukrainy, 2009).

Calculating the level of the shadow economy using the electricity method involves comparing the growth of domestic electricity consumption with the growth of GDP. It assumes that the growth of domestic electricity consumption should correspond to the growth of real GDP. If there is an excess of the growth of domestic electricity consumption over the growth of GDP, it is considered that electricity is being used for production in the shadow economy. Calculating the level of the shadow economy using the method of loss-making enterprises involves determining the boundaries of the minimum and maximum coefficients of the shadow economy as a percentage of GDP, within which the level of the shadow economy exists (Verkhovna Rada Ukrainy, 2009).

These methodological recommendations are developed to assess the level of the shadow economy in the national economy as a whole and by specific types of economic activities through indirect calculations of the value of goods (works, services) at the macroeconomic level, intentionally overstated or understated by economic entities in statistical reporting (Verkhovna Rada Ukrainy, 2009).

The statistical data provided by the Ministry of the Economy represent an integrated indicator calculated by using four methods that cover various sectors. Two of these methods are classic approaches: the electricity method and the monetary method. The other two methods were developed in Ukraine, taking into account the national specificities of the shadow economy. These methods involve analysing the losses of enterprises, and retail trade turnover and services.

The shadow economy in Ukraine accounts for approximately one-third of the GDP. According to data from the Ministry of the Economy, its size varied between 28% and 33% from 2015 to 2021 (Figure 1). However, these figures cannot be considered statistical as they are approximate estimates that serve as a benchmark for tracking the dynamics of the hidden economy. We also observe stability in the level of the shadow economy; it remained unchanged at 31% of the official gross domestic product in 2020 and 2021. This stability may indicate that economic entities have adapted to operating under constraints, particularly during the COVID-19 pandemic, and developed new channels for shadow activities.

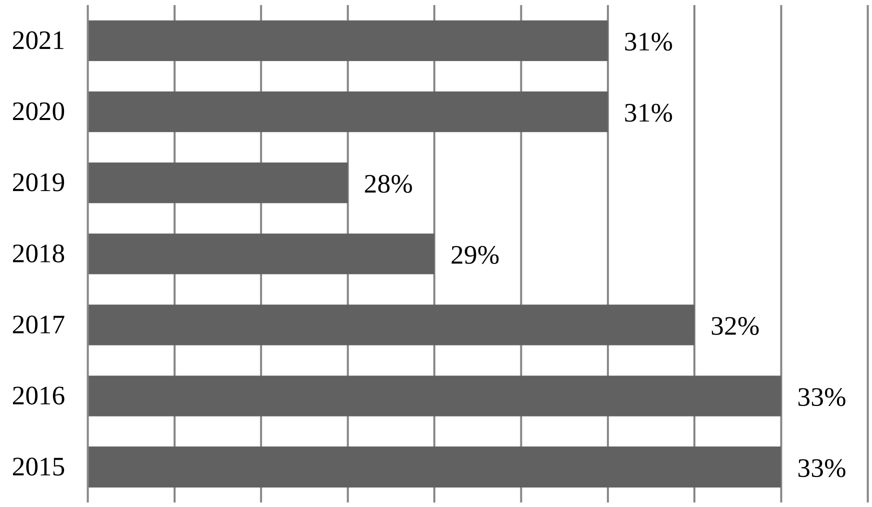

Figure 1. Integral indicator of level of shadow economy

Source: (Ministerstvo ekonomiky Ukrainy, 2022)

Nevertheless, based on these data, two out of the four methods showed an increase in the shadow level. Specifically, the electricity and monetary methods increased by 2 p.p. to 28% and 33% of the official GDP respectively. On the other hand, the population expenditure – retail turnover and services method decreased by 2 percentage points to 23% of the official GDP, and the method of loss-making enterprises dropped by 10 percent to 22% of the official GDP (Figures 2 and 3). Such dynamics are influenced by specific factors, namely by the gradual intensification of business activity amid the adaptation of enterprises to ongoing restrictions, resulting in improved financial performance during the reporting period. Additionally, there may have been constraints on the traditional channels of shadow activity, which was one of the atypical manifestations of the pandemic in 2020-2021.

The shadow economy encompasses a wide range of activities, including criminal activities such as prostitution, drug and arms trafficking, the resale of stolen goods, underground casinos, as well as economic activities that go unrecorded and therefore remain untaxed, such as light industry, small-scale production in households, unreported harvests, and others (Doshchatov, 2022).

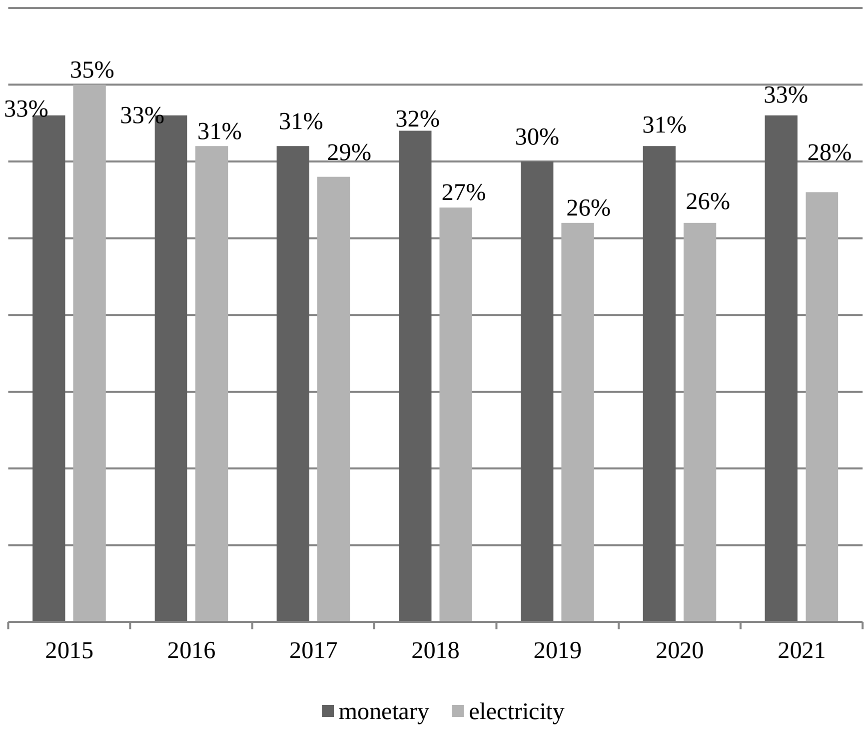

Figure 2. Level of shadow economy according to two methods (monetary and electricity) in relation to official volume of GDP (%)

Source: (Ministerstvo ekonomiky Ukrainy, 2022)

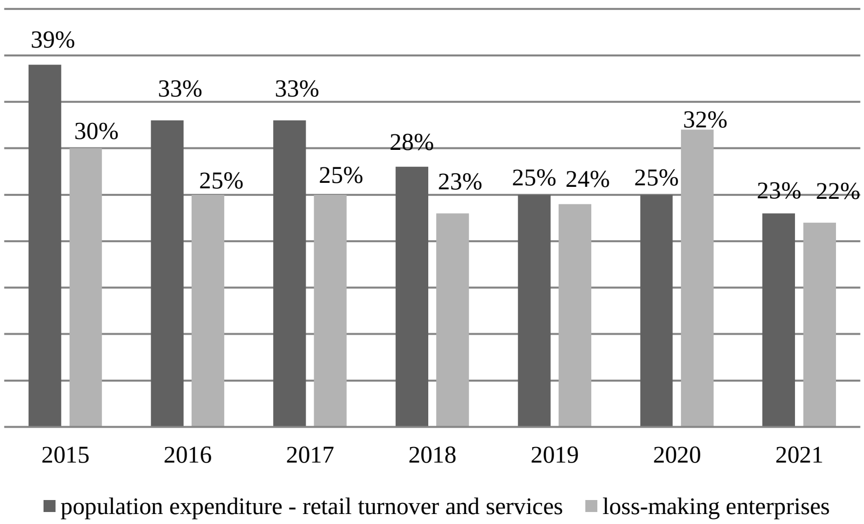

Figure 3. Level of shadow economy according to two methods (population expenditure – retail turnover and services, loss-making enterprises) in relation to official volume of GDP

Source: (Ministerstvo ekonomiky Ukrainy, 2022)

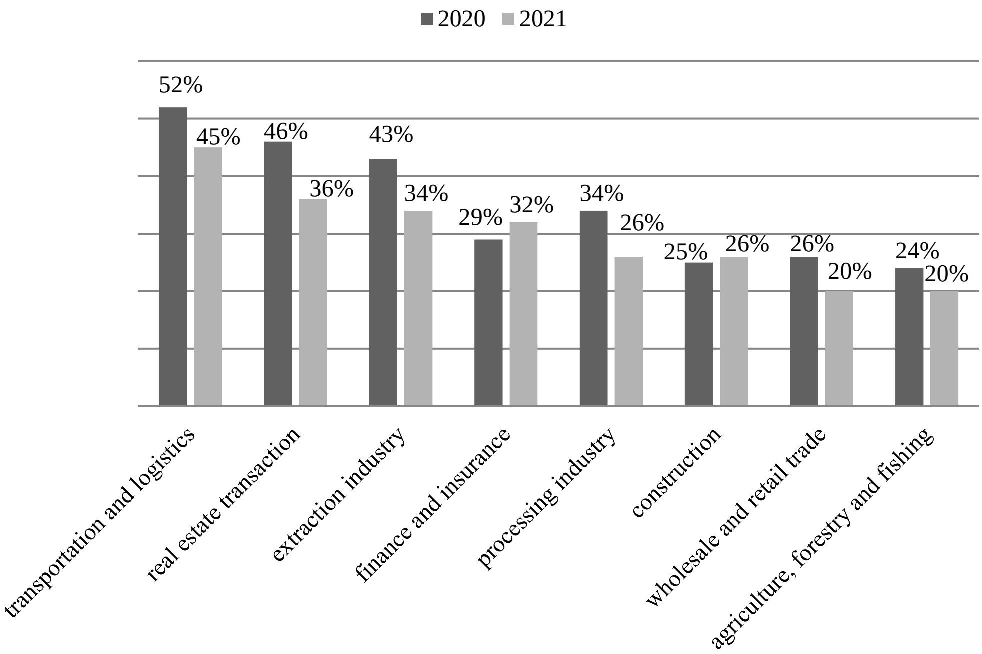

Figure 4. Level of shadow economy by types of economic activity in 2020-2021

Source: (Ministerstvo ekonomiky Ukrainy, 2022)

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In Figure 4, we observe the level of the shadow economy by the types of economic activities, where the most significant reduction in the share of the shadow segment occurred in real estate transactions, decreasing from 46% to 36%, in the extraction industry from 43% to 34%, and in the processing industry – from 34% to 26%. The level of the shadow economy also decreased in such sectors as transportation and logistics, wholesale and retail trade, agriculture, forestry, and fishing. One of the reasons for these dynamics could be the increase in the domestic market demand and favourable conditions in external markets. Nonetheless, there were two sectors where the level of the shadow economy increased: finance and insurance (from 29% to 32%) and construction (from 25% to 26%), primarily owing to rising prices of the necessary raw materials for construction works.

The shadow economy in wartime

Globalization and its impact on the economic segment lead to an increase in the overall level of the shadow economy worldwide. Importantly, this level is not dependent on the level of economic development of a country. Some scholars argue that the shadow economy exists not only within individual countries but also in the context of global players such as states and organizations, which serve as carriers of shadow processes worldwide (Pichuhina & Chorna, 2015).

World history points out the following classic causes of the formation of the shadow economy (Morytsan et al., 2014):

- a complex labour market situation that contributes to the formation of small and medium-sized businesses, which become centres for the development and operation of shadow economic relations;
- rapid migration processes from rural and depressed regions to cities, resulting in the formation of shadow economic relations;
- the high level of state regulatory intervention in the economy, particularly high taxation and corruption;
- intense competition in the market, which compels producers to reduce the cost of resources through various means, including illegal ones;
- excessive institutionalization and regulation of labour relations, leading to their transition into a more informal and flexible form.

These aforementioned reasons have been applicable to Ukraine in the recent years of its independence, and in conjunction with crisis situations, have contributed to the intensification of economic shadowing.

Ukrainian President Zelensky sincerely believes in the fight against not only the aggressor country but also the shadow economy in the present time and during the reconstruction of Ukraine in a new way, without involvement of the shadow sector of the economy (Ofis Prezidenta Ukrainy, 2022). He believes that currently, in some of regions, any economic activity, whether official or unofficial, is simply a matter of survival. Nonetheless, when it comes to a normal, stable, and strong society, as well as defence of the country, we must understand that there are those who serve and those who support by means of their work those who serve. Therefore, this involves official employment, tax payments, a maximum expansion of economic opportunities on a legal basis, as well as a complete modernization of state institutions.

Hence, it is crucial for both political leaders and the society as a whole to understand and be prepared for the absence of the shadow in Ukraine. The existence of the shadow economy directly depends on people's desire to reduce tax payments and purchase goods at lower prices. This issue remains at the forefront and requires responsible changes and successful management decisions, not only during wartime, but also in the post-war period. The current situation has transformed and mobilized Ukrainians, creating prospects for the society to support the President's position regarding the shadow economy in Ukraine.

In the situation of the war, the advantages of official employment in terms of preserving at least partial wages from employers and receiving support from the state are evident. Nevertheless, this applies exclusively to the formal sector of employment as workers in the informal sector have faced failures since employers could quickly and without explanation terminate their employment, which is quite logical since their employment was not documented or guaranteed from the beginning (Derzhavnyi tsentr zainiatosti, 2022a).

On the other hand, to some extent the shadow economy also "saves" the economy in the present time because even wages that are not subject to taxation are better than complete unemployment. Consequently, taxes are still collected by the state through excise duties on fuel, tobacco, or food products (Derzhavna podatkova sluzhba, 2023). Additionally, the state and the Armed Forces act as significant employers at the moment as many families rely on the wages of military personnel. Therefore, they should receive fair compensation for their work, regardless of where they serve.

In 2022, the state received 60.7 billion UAH from domestically produced excisable goods, two-thirds of which came from tobacco products. According to the law on the state budget, the state plans to collect 64.35 billion UAH in excise tax from domestically produced excisable goods in 2023. Almost all of this increase is expected to come from tobacco products. The amount of revenue would be much higher if not for significant tax evasion efforts (Ekonomichna pravda, 2023b).

According to Kantar Ukraine, the level of illegal tobacco products reached 19.9% in 2022, compared to 16.9% in 2021 and 6.9% in 2020. Compared to 2021, the share of counterfeit products (6.6%) and products intended for duty-free zones or export but sold illegally in Ukraine (11.7%) rose. However, a decrease in the share of counterfeit products in November 2022 led to a reduction in the overall level of illegal production by the end of the year. Regarding the volume of the shadow cigarette market in Ukraine in money terms, it reached 19.14 billion UAH in 2022. It is known that 63% of illegal products are sold in stores alongside legal products (Ekonomichna pravda, 2023a).

Similar data are provided by the centre for economic research CASE-Ukraine, which estimated the shadow share of tobacco products at 20.1% in 2022, 14.7% in 2021, and 5.7% in 2020, indicating a significant rise in the shadow sector. According to WHO, from 2015 to 2019, the volume of illegal alcohol in Ukraine accounted for an average of 36% of the market. Meanwhile, CASE-Ukraine's research calculated the level of shadow alcohol consumption, which stood at 34% in 2021 and 36% in 2022. As for all types of automotive fuels, the shadow share declined to 22% in 2021 and 11% in 2022, with 27% in 2020. The actual consumption of which is adjusted according to the change in real GDP, which grew by 3.4% in 2021 and decreased by 30% in 2022 (CASE-Ukraina, 2023).

The high level of the shadow economy, which significantly undermines the effectiveness of management systems, requires specific and gradual changes to minimize the shadow economy in Ukraine. Nevertheless, as mentioned above, in the conditions of active military operations in the eastern regions of the country, the shadow economy to some extent plays a traditional role as a buffer that mitigates the impact of crisis phenomena on people's incomes and restrains the growth of unemployment.

According to the State Employment Service, as of early April 2022, the number of officially registered unemployed reached 277,000 people (Derzhavnyi tsentr zainiatosti, 2022b). The increase in unemployment occurred as a consequence of a deep decline in economic activity and the influx of unemployed migrants from the frontline territories, who are in need of employment.

Internal migrants create additional pressure on the labour market since the employment structure in the eastern regions has significantly shifted towards the industrial sector compared to the western and central regions where they migrate to (Analitychnyi tsentr Cedos, 2022). This exacerbates the existing structural and qualification disparities between the labour demand and supply, even taking into account the impact of business relocations. The increment in the unemployment rate somewhat hampers the effectiveness of restraining factors, including the presence of forced migrants who did not actively seek employment, mobilization, and the weak financial resilience of households, which compelled household members to actively search for work, even if it is less skilled and lower-paying.

According to the estimates of the National Bank of Ukraine, at the beginning of the war, the economy contracted by 50%, which means a loss of half of the production. However, the recovery process began thereafter, and the decline in GDP was 45% in March and 40% in April. The ability to export is critical for Ukraine. Before the war, Ukraine was exporting up to 13 million tons per month, but now it is around 2 million tons. There might be a possibility of expanding this to 5-6-7 million tons in the future, but even that would still be only half of the pre-war volume, significantly impacting the economy and the possibilities for production recovery (CASE-Ukraina, 2022).

The economic losses resulting from the military aggression against Ukraine amount to $130 billion, and potential GDP losses range from 1.5 to 1.7 trillion UAH. Based on tax coefficient calculations, this translates to at least 525 billion UAH in uncollected tax revenues, or potentially up to 600 billion UAH.

At the end of 2022, tax revenues covered less than 50% of the consolidated budget needs (compared to 85% in peacetime). A reduction in the expenditures is possible through the optimization of state agencies, the largest agency in terms of public order being the State Tax Service. This optimization can be achieved through the implementation of technologies and digital solutions (CASE-Ukraina, 2023).

Methods and results of authors' own observation

To achieve the aim of the article, a combination of general scientific and specialized methods of scientific research was used, which enabled unity of the research. A study of the theoretical and practical aspects of the formation of the shadow economy component in crisis conditions in Ukraine was conducted using the following methods:

1. analysis of literature, logical generalization, synthesis, induction, and deduction when clarifying the conceptual framework;
2. dialectical and systemic-structural methods in analysing the understanding of the economic nature of shadow economy evaluation and its problematic aspects;
3. comparative and statistical analysis to specify the diversity of evaluating the level of shadow economy formation in Ukraine;
4. graphical method for visualizing the level of the shadow economy in Ukraine based on different indicators and criteria during the period from 2015 to 2021. This includes the integral indicator of the shadow economy level, the level of the shadow economy according to the four most commonly used methods in Ukraine – electricity, monetary, loss-making enterprise and population expenditures – retail turnover and services in relation to the official GDP volume, as well as indicators of the shadow economy level by types of economic activity (transportation and logistics, real estate transactions, extraction industry, finance and insurance, processing industry, construction, wholesale and retail trade, agriculture, forestry and fishing) in 2020-2021.

Table 1. Factors and their changes in post-war period in Ukraine

Factors of shadow economy	Changes
Corrupt activity	– raise level of property rights protection – strengthencontrol and inspections – apply labor relationship certification methodology between employees and employers (failure to formalize may result in penalties)
Tax burden	– reduce burden on wage fund (in regions affected by the conflict) – maintain tax rules and rates unchanged for certain period of time – require use of transaction registers after end of war
Rapid growth of number of refugees	– encourage workforce to return from abroad – promote employment and create conditions for veterans and war-affected individuals; – implement subsidies and skill enhancement programmes with government participation
Weak efficiency of management system	– implement institutional reform (fundamental change) – improve quality of governance – renew tax authorities – enhance quality of public services
Regulatory pressure and monopolization	– reform regulatory and monopoly sectors

Source: Author's own compilation (T. Demkovych)

In general, the impact of the shadow economy on the economic environment and society is rather negative than positive. By analysing the issues of the shadow economy, its causes, and existence in crisis conditions, a scheme of factors of the shadow economy that currently exist in Ukraine was developed, which included their potential changes for de-shadowing of the economy in the post-war period (Table 1).

Given the scale of the invasion and the area directly affected by military actions, there are minefields, destruction, and the impossibility of conducting economic activities near the front lines. There is also an outflow of consumers of goods who are currently located either in western Ukraine or outside its borders. Thus, the construction, supply, installation, and commissioning of new equipment for the destroyed enterprises are essential for the renewal and dynamic growth of the economy. Consequently, the return of part of the Ukrainian population, particularly the employed population, as well as the recovery and invitation of foreign investors to participate, will ensure the abovementioned outcomes.

Conclusions

Employment during a full-scale war has been significantly impacted, with the main problems being mass job losses, the destruction of enterprises, deprivation of social needs, and a continuous increase in refugees. The extensive loss of jobs, internal and external migration of the working population during the full-scale war, has exacerbated the situation in the labour market. In Ukraine, the most in-demand sectors are infrastructure restoration, the construction of residential complexes, provision of essential goods, and guarantees for official employment and decent working conditions. Regarding the shadow economy sector and innovations during the state of war in Ukraine, it is important to reduce tax burdens for employers, thereby motivating organizations to retain existing jobs and potentially create new ones.

In conclusion, it is important to establish social justice, to consider the attitude of the working population, to structure the economy, and to develop human capital. Preferential treatment should primarily be given to those who cooperate with the state, thereby incentivizing employers to engage in official employment, that is, to promote social dialogue and fulfil social obligations. It would be advisable to provide subsidies and increased qualifications for vulnerable individuals (war participants, refugees, orphans, people with disabilities, etc.) with long-term guaranteed assistance and support from the government.

Certain institutional changes necessitate the creation of a state body responsible for prioritizing the interests of employees and reducing the shadow sector of activity for employers. It is also important to concentrate resources for economic and technological integration, eliminate external financial dependence, and promote industrial and scientific sectors. De-offshorization, transparent accounting practices, and the automated distribution of tax information should serve as driving forces for these changes.

The conducted research enables us to understand that the shadow economy in crisis conditions in Ukraine is a complex dualistic phenomenon with both positive and negative consequences for the national economy and the population as a whole.

The existence of a shadow economy poses risks to national and social security, but it is important during times of war to prepare the society for changes and the adoption of new legislative solutions.

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CECHY SZAREJ STREFY GOSPODARKI W WARUNKACH KRYZYSU W UKRAINIE

Streszczenie: Artykuł zawiera analizę szarej strefy gospodarki z wykorzystaniem statystycznych, analitycznych i funkcjonalnych metod badań naukowych w okresie stanu epidemiologicznego oraz pełnej inwazji Rosji na Ukrainę. Celem badania jest uogólnienie aspektów teoretyczno-metodologicznych szarej strefy gospodarki, zbadanie współczesnego stanu skalowania szarej strefy w warunkach ograniczeń kwarantannowych oraz pełnoskalowego wtargnięcia Rosji do Ukrainy i systematyzacja możliwych sposobów legalizacji gospodarki. Szara strefa ekonomiczna to zjawisko społeczno-gospodarcze, które przedstawia sobą szereg przesunięć w strukturze budżetu państwa, szczególnie w odniesieniu do wskaźnika dochodów podatkowych. W warunkach kryzysowych określone elementy szarej strefy mogą stać się zarówno siłą zrównoważenia poziomu szarej gospodarki, jak i zagrożeniem nie tylko ekonomicznym, ale również społecznym. Dlatego przeanalizowano dynamikę zmian w szarej strefie gospodarki zarówno według określonych metod oszacowania jej poziomu w stosunku do oficjalnego PKB, jak i w różnych gałęziach gospodarki w okresie ograniczeń kwarantannowych, na podstawie danych Ministerstwa Gospodarki Ukrainy. Opracowano również statystykę czynników szarej strefy i zaproponowano możliwe skuteczne zmiany w celu ich przezwyciężenia. Z istoty niniejszego badania wynika, że szara strefa gospodarcza potrzebuje nie tylko doskonałej oceny oraz szczegółowych danych do jej analizy, ale także uporządkowania systemu zarządzania jakością usług publicznych i gotowości ludzi do wyjścia z „cienia”.

Słowa kluczowe: płace, podatki, praca „na czarno”, szara strefa gospodarki

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THE CONCEPT OF A SMART CITY MANAGEMENT IN THE LIGHT OF THE LITERATURE REVIEW

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Abstract: The vision of a Smart City is to connect smart models, smart IT, and smart management practices that qualitatively help municipalities advance service delivery in the areas of infrastructure, environment, education, health, and more. Modifying the management skills of local government leaders is a natural response to Smart City policy. Methods used in this paper that helped to achieve the objectives were a review of the current state of knowledge of the issue, search of relevant literature and case studies, summarisation of results, induction, deduction, and others. The studies included the following research questions: 1. What is the general scope of research on Smart City and Eco-Smart City? 2. What are the key challenges for Smart City managers? 3. What is the current state of Smart City development? The Web of Science and Scopus databases were chosen to identify relevant literature. The research focuses on articles published in English (from 2019 to 2023). The aim of the review is to provide a current picture of research in smart cities and to identify gaps and areas for future research. The analysis brought two challenges to the research: research is often fragmented and technology-driven, and many studies are on the perceived benefits of smart city projects.

Keywords: innovation, management, Smart City

JEL Classification: H79, O32, O40, R11

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Introduction

In the last years of the 21st century, we can observe a growth of interest in the topics of self-governance theory that concerns participation, innovation, and environmentalism (Frick, 2023; Beveridge & Koch, 2022; Shelley, 2022). Studies, policies, practices, and theories are leading to the transformation of local governments into a new form (Teles, 2023; Volk, 2022). The enormous qualitative change in local government units in terms of development and growth is the result of awareness of the importance of this element of society. What is remarkable is the fact that local governments continue to maintain their status as an important part of the existence of communities, the quality of life development of society, and democracy.

Extreme changes in the external and internal forms of local government are the natural evolution of the needs and means that inevitably affect it. The exhibition of these changes has the results in terms of life quality indicators, economic, social, and business performance, etc. In addition to its representatives and inhabitants, the driving forces are the policies of global urbanization and the digitalization of society. It is the latter that currently presents an opportunity resulting in a quantitative-qualitative change in the nature of local governments (Tura & Ojanen, 2022; de Gauimaraes et al., 2020; Frank & Fernández-Montesinos, 2020; Singh & Rathi, 2019).

Technological advances in IT, the rate of change and innovation, the new capabilities of local government representatives, citizen participation, the size of resources and means, and the potential of local governments are the driving forces of the renaissance. The selected elements of the mechanism are only a brief selection of the options that fundamentally modify the phenomenon of territorial self-government into the form of a Smart City. As Vagisha (2020) adds, “Thanks to digital technology, all operational tasks related to citizens and government, integrated metropolitan services, database systems, geographic information systems and others are easily automated. The functioning of smart city infrastructure is seamless and free from any hindrance”. This places Smart City among the tools for sustainable, smart and quality development of cities and regions (SBA, 2021; Smart City Summit, 2021; Johnson et al., 2020; Yigitcanlar, 2018).

The intention to proactively implement (cutting-edge) technologies and platforms enabling maximum use of IT in the local government environment leads to digital transformation and automation of local governments, which has a major impact on these units compared to the archaic governance model. Equally important are the abilities of their representatives to adapt to new environments and circumstances. Therefore, it is not only the expansion of high-end technology and hard infrastructure, such as buildings, transport, logistics, and the economy, that must be emphasized. Although, as Neirotti et al. (2014) state, “hard infrastructure plays an important role in addressing Smart City issues”, Ammara et al. (2022) point out in their work that attention should also be focused on humanistic elements and social capital.

Studies dealing with Smart City issues examine the above-mentioned aspect, thus sidelining soft infrastructure. However, to comprehensively explore this conceptual sophistication of municipalities and cities, including processes, models, and practices, it is necessary to also dismantle the changes related to management, i.e., the qualitative development of human resources. Kavanagh (2020) points out that smart cities have the potential to change not only the hitherto existing nature of the economic models of running and managing local government units but also the nature of social-community models. The liaison officer for the above is the local government management. Local government management is facing new unknown challenges (Qayyum et al., 2021; Zhang et al., 2017). It must be able to reflect and align the city's strategic development plans with land use planning, citizens' needs, and opportunities. Only through the professional erudite management approach of the leadership and management of the planning units can the goals and objectives of the Smart City concept be achieved. At the same time, this can be considered a natural consequence of the global digital revolution and automation.

The add-on of the Smart City model is the Eco Smart City, which in terms of higher intentions again takes the whole issue of sustainability and resilience of the Smart City forward, thanks to eco-innovations. Here again, the main role is played by the management, which embraces eco-innovation and the eco-dimension of managing the unit. As Bibri (2021) and Caprotti (2020) mention in their studies, in the case of Eco-Smart City, in addition to the economic and social qualities of the city, its environmental qualities must be taken into account. By this, cities declare not only economic autonomy but also a policy that leads to full carbon neutrality and renewable energy production, sophisticated urbanization and transport systems, sustainable lifestyles, reduction of material consumption, and awareness raising about environmental issues, among others. These are five things that cannot be achieved without erudite managers and approaches. However, there are no strict definitions of the term “smart manager” or even of the term “eco-city”. Spath (2023) proposes eco-cities and smart cities as “socio-technical experiments” that are potential drivers of local, national, and international environmental socioeconomic change and transition. Many of these projects combine elements of eco-city planning (focusing on visible ‘hardware’ of environmental sustainability: planning, architecture, renewable energy, smart grid technologies, etc.), with ‘Smart City’ planning (focusing on ‘software’: information systems, social capital, knowledge transfer, etc.). We will analyse ‘Smart Eco City’ initiatives that experiment with environmental and economic reforms in both areas that are spatially close (e.g. city regions) and in an international context (through networks of knowledge, technology, and policy transfer and learning).

Literature review

Analysis of the available literature shows that several researchers work on Smart City issues, each of them having a specific approach to the topic based on their professional focus (Table 1). The Smart City issue is understood as a concept, method, product, philosophy, IT platform, etc. Therefore, a unified framework and a correct definition are still not clear. In addition, researchers and authors of publications focus their research more on hard infrastructure (Rani & Sharma, 2023; Jonek-Kowalska, 2022; Elghaish et al., 2022; Alnahari & Ariaratnam, 2022; Benedict, 2022). The most frequent topics include infrastructure, energy, urban mobility, and waste management. Less intensively, the authors analyse the relationship between the application of the Smart City concept and the quality of management. However, the authors stress the importance and role of unit managers in the application of the Smart City concept. Thus, our analysis concludes the need to link the qualitative nature of IT and the qualitative development and open approach of local government representatives. Furthermore, as the authors emphasize in their studies, the environmental influence and dimension of Smart City intentions become inevitable. The latter can be described as a new opportunity for communities, which puts Smart City intentions in a diametrically different dimension. The eco-innovative dimension, called Eco Smart City, is currently being addressed by an increasing number of authors. The authors agree that a Smart City without the added eco-characteristic loses its meaning. Working from the very first stages with the environmental and eco-innovative character of the modification of schemes leads to more sustainable development in regional and global schemes.

Table 1. Meaning of a Smart City

Year	Source	Meaning
2023	Filiou, Kesidou, Wu	an example of a combination of AI and IoT applications to specific geographical contexts and are used here as a way to capture the implementation of digital policies
2022	Ammara, Rasheed, Mansoor, Al-Fuqara, Qadir	the ability of urban inhabitants – whether they are leaders or members of urban communities – to use ingenious solutions to solve lingering problems
	European Union	a place where traditional networks and services are made more efficient with the use of digital solutions for the benefit of its inhabitants and business
2020	DeGuimaraes, Severo, Júnior, Da Costa, Salmoria	a viable solution to aggregate public resources, human capital, social capital, and information and communication technologies to promote sustainable development
2019	Zitzman	hubs that route IoT-produced data through public-private partnerships to solve real problems
2018	Ruhlandt	a multi-dimensional mix of human (e.g., skilled labor), infrastructural (e.g., high-tech […] facilities), social (e.g., […] open network linkages), and entrepreneurial capital (e.g., creative […] business activities) merged, coordinated and integrated into the fabrics of the city using new technologies to address social, economic and environmental problems, involving multi-actor, multi-sector, and multi-level perspectives
2013	Kitchin	places where information technology is deliberately used to improve city operations and management, enable innovation in public services and governance and increasingly improve long-range planning
2007	Giffinger, Fertner, Kramar, Kalasek, Pichler-Milanović, Meijers	a city well performing […], built on the 'smart' combination and activities of self-decisive, independent, and aware citizens

Year	Source	Meaning
2003	Odendaal	[…] Information and Communication Technology (ICT) in promoting prosperity and influence of the city
2000	Hall, Bowerman, Braverman, Taylor, Todosow, Von Wimmersperg,	designed, constructed, and maintained making city use of advanced, integrated materials, sensors, electronics, and networks which are interfaced with computerized systems comprised of databases, tracking, and decision-making algorithms
1999	ICT Strategy of Dubai	[…] where residents and local governments created communities using ICT and sensors to share information

Source: Own processing according

Research methodology

To understand the issues and the role of local government management within the Smart City concept, it is essential to draw on real studies and knowledge, which will be analysed in the form of studies and scientific output. To achieve this, a bibliometric analysis will be carried out based on 46 publications, largely indexed in Web of Science and Scopus. The search strategy consisted of searching for articles based on selected keywords, availability of abstracts, and open access to the works (Figure 1).

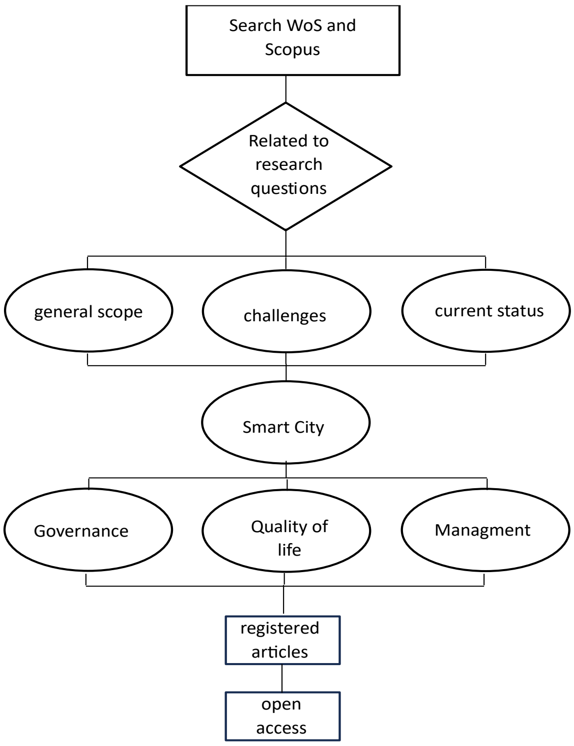

Figure 1. Literature Review Search Process

Source: Own processing

On average, more than 10,000 articles are identified per year (Table 2). Some of the publications are indexed in both databases, which means that the total number of publications is lower. The authors cannot quantify this fact exactly.

Table 2. Articles in Web of Science and Scopus databases by filter

Year	Database	Status of articles	Keywords: "Smart City" and "Governance"	Keywords: "Smart City" and "Quality of life"	Keywords: "Smart City" and "Management"
2019	Scopus	registered articles	1074	2741	3061
		open access	190	450	498
	WoS	registered articles	425	361	418
		open access	172	119	152
2020	Scopus	registered articles	1360	3527	3890
		open access	285	659	749
	WoS	registered articles	366	330	410
		open access	198	163	208
2021	Scopus	registered articles	1762	4507	4992
		open access	513	1121	1277
	WoS	registered articles	429	316	415
		open access	233	161	222
2022	Scopus	registered articles	1866	4987	5352
		open access	718	1535	1737
	WoS	registered articles	423	319	380
		open access	261	185	198
2023*	Scopus	registered articles	1234	3197	3399
		open access	468	1044	1154
	WoS	registered articles	131	108	115
		open access	83	68	67

Source: Own processing according to results in the Web of Science and Scopus databases

The research aims to answer the following questions: 1. What is the general scope of research on Smart City and Eco-Smart City? 2. What are the key challenges for Smart City managers? 3. What is the current state of Smart City development?

In answering the last question, we will rely on the global Smart City evaluation indexes. In addition to the secondary literature analysis, the method of summarisation, comparison, deduction, induction, and creativity was used to draw our own general conclusion. Therefore, this article aims to contribute to the understanding of the relationship between innovation and Smart Cities and management, contribute to the Smart City literature, and also formulate questions that will support the potential for further research.

Results

As the present paper intends to answer the key questions of nature, outcomes and efforts, as well as skills required, we will use secondary study results and findings to approach the specific answers.

1. What is the general scope of research on Smart City and Eco Smart City?

Smart City is not only a discussion topic among experts, but also a matter of running and managing units. Research shows that many cities address Smart City issues not only in terms of new technology trends, such as Internet of Things, Internet of Drones, Internet of Vehicles (Preeti, Sharma, 2023; Akram et al., 2023; Heidari et al., 2022; Quin-Shan et al., 2022) but also in terms of social and environmental impact (DeMarco & Mangano, 2021; Nitoslawski et al., 2019). In their publications, researchers mainly deal with hard infrastructure and management elements of the classic Smart City concept (87% of publications). By the term Smart City, we mean the involvement of IT elements without reflection on environmental burdens, i.e., the possibilities of IT application in the municipal environment, the interconnection of networks, and the technological perspective. The strengthening of the qualitative nature of services and improving regional competitiveness are the main drivers for cities to implement the Smart City strategy. Implementing innovative solutions and targeting key problem-solving is the essence of the representative model ideas. Digital policies embedded in Smart Cities can facilitate long-term sustainable development, as the combination of artificial intelligence and the Internet of Things can provide the starting point for further innovations in the form of process, product, or supply chain eco-innovations, e.g. smart manufacturing (Filiou et al., 2023).

The conventional Smart City model is based on the development and elements of the proportional components integrated on the basis of naturalness. Building this model is based on coherence, reliability, accessibility, and completeness. This is based on a dimensional structure consisting of six domains (Figure 2), which is advocated by Giffinger & Haindl (2009) and Attaran et al. (2022).

Another finding is that the dimension of local government units, management and their transition to new skills and competencies is often absent in the output. While this issue is covered in the themes that have seen a noticeable increase in popularity in the area of life quality assessment, as well as the environmental dimension, it is not solved directly. According to a study by the McKinsey Global Institute (2018), the application of Smart City elements has an impact on quality of life, which can improve by 10-30%, reduce the number of deaths by 8-10%, speed up the response time of emergency services by 20-35%, reduce the greenhouse effect by 10-15%, and much more.

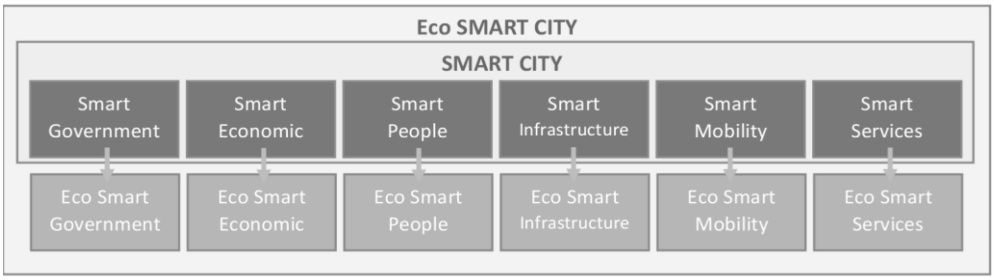

Figure 2. The General Six-Dimensional Model of Smart City and Eco Smart City

Source: Own study

The aforementioned dimension of environment, eco-innovators and eco-visionaries, a group that includes cities, regions, and states that have set as a goal the green development of Smart City or Eco Smart City, is also progressing. This issue is one of the global visions of today, given the unwanted fact that they are emitters of 80% of gas emissions (Mott et al., 2021). Green schemes (Wang, 2023; Bonab et al., 2023; Albalawi et al., 2023) address the value and impact of green technologies on the economy and environment.

2. What are the key challenges of Smart City management?

As cities are among the driving engines of socioeconomic development, the modernisation pathway is a natural response and key to achieving this goal (Camboim et al., 2019), as well as the fact that Smart Cities have a higher potential to achieve a healthy and quality life (Demarco & Mangano, 2021; De Guimaraes et al., 2020) by applying holistic eco-green frameworks. It is fundamental to understand the role of policy in supporting eco-innovation, particularly in cities in developing and emerging economies as “growing first and cleaning up later” can increase environmental impact and risk locking in their development trajectory (Pegels & Altenburg, 2020).

For applying and achieving the intentions of Smart City policies, the selection of areas and intentions, planning and choosing the implementation mode, professional management, pro-client mode of goods provision, sustainability, and eco-potential become key challenges. However, of fundamental importance in this area is the value and quality of human resources, which represent the key actors on both the creator and users' side (Gerli et al., 2022; Guenduez & Mergel, 2022). Helfat & Raubitschek (2018) emphasise that decision-makers, as key thinkers, should think primarily in terms of ecosystems, strategic partnerships, and coordination of activities and technology both within and outside the organisation. The issue of openness and access of management to clients, as well as the reciprocity of relationships, is a major advancement, especially for the post-communist EU states. Management learns and builds on examples of good practice. Globalisation, computerisation, digitalisation and open access, as well as state and EU support mechanisms, are all means of facilitating the transition to a new style of management. Of course, language skills, the ability to think critically and futuristically, to see contexts and to look for deeper socioeconomic connections, to have the prerequisites for dealing with the legislative and legal framework, as well as the ability to be oriented towards the protection and support of the vulnerable are also important.

3. What is the current state of Smart City development?

Under the theme of Eco Smart City, we observe reflections on the current age. Strong economically developed cities and countries respond to the need for a change in mindset. However, the positive trend in the application of Smart City elements is not only noticeable in developed countries in the world or the EU.

The leaders in Smart City, according to the report by the results of the World Competitiveness Center (2023), are the countries outside the EU, that is, Switzerland, Norway, or Australia, but even EU countries are not far from reaching the top and approaching the elite (Figure 3). We attribute this to EU initiatives in addition to domestic initiatives. This is because the EU (European Commision, 2022) promotes a paradigm of innovation and urban modernisation through its policies. It sees this phenomenon as the integration of physical, digital, and human systems into traditional networks and services to make better and more efficient use of resources. Within the EU, Amsterdam and Hamburg lead the deployment of Smart City solutions.

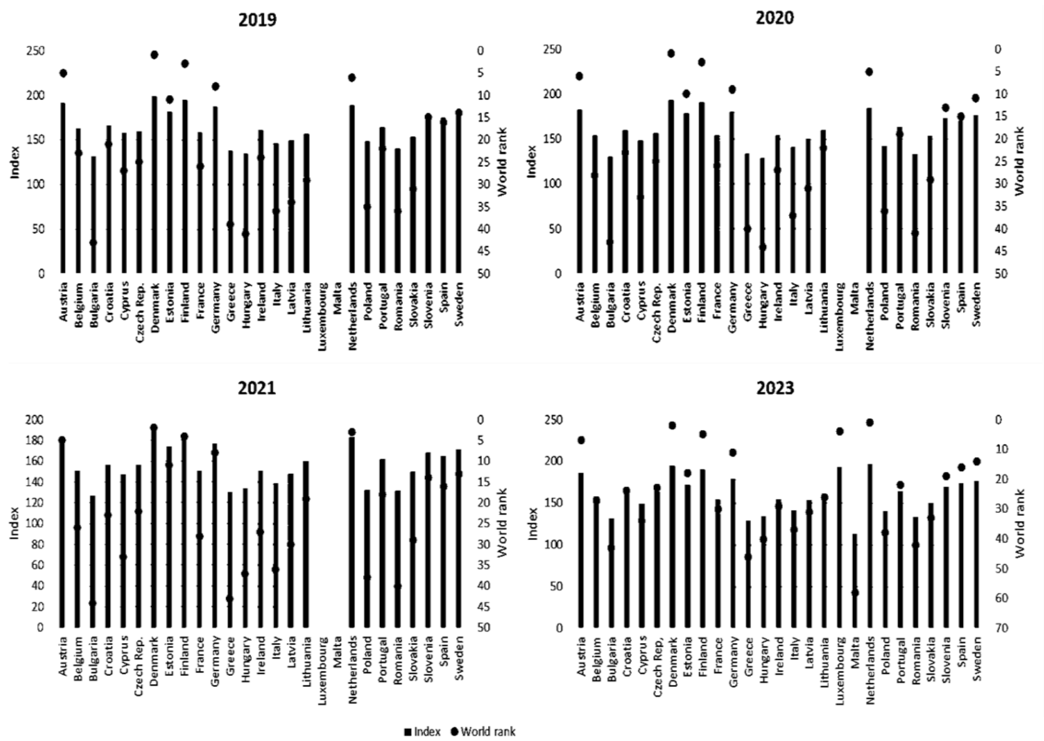

Figure 3. Smart City Index – Member states of the European Union

Source: Own processing according to the results of IMD World Competitiveness center (2019-2023)

Equally pleasing are the results of the newcomers in the application of Smart City strategies, which are also the less developed EU countries. Therefore, it can be said that all countries consider the Smart City issue as an opportunity for development and growth (Malta being an exception). These countries show the most signs of dynamism and appetite for improving the quality of life, through innovation in public services. Thus, the Smart City Index itself is the first global index that covers the assessment of the level of achievement of Smart City intentions (Figure 4). It assesses the approaches of the main cities, based on the perception of services, the pro-client approach, and innovations directed towards the citizens.

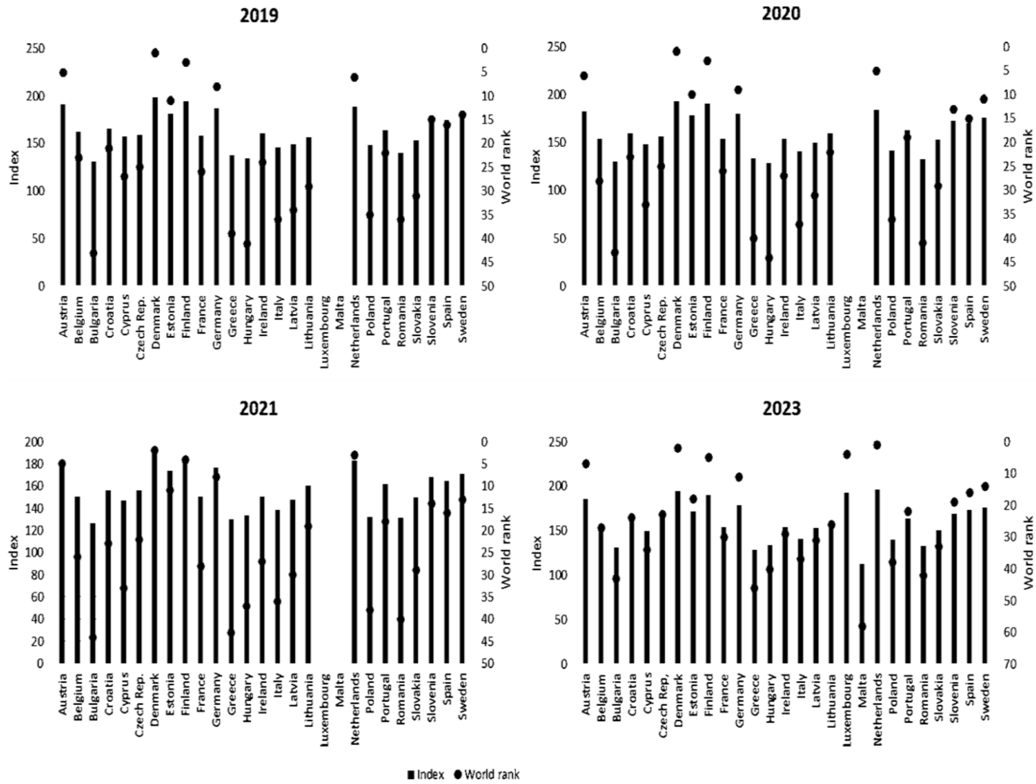

Figure 4. Quality of Life Index by Country

Source: Own processing according to Numbeo results (2019-2023)

We note that cities are interested in innovation and a qualitative shift based on the dynamics of things, but given circumstances such as the COVID-19 pandemic or the economic and energy crisis, there is still plenty of room to fully achieve their plans.

Discussion

Based on the goal setting, purpose, and constraints we have worked with in the development of the output, we take the opportunity to discuss the changes and opportunities related to the Smart City issue.

Smart City issues have been topical and addressed by many practitioners since the 1990s, as evidenced by the quantum of practical and theoretical outputs. However, there has not been a clear and unambiguous definition of the concept (Filiou et al., 2023; European Commision, 2022; Zitzman, 2019). Smart City is perceived as a process, a means, a goal, an intention, but also a challenge. The first-generation definition of Smart Cities appeals to the use and application of IT technologies (ICT Strategy of Dubai, 1999). The topics of population needs and cyber security are completely absent. Minimum to no attention has been paid to concerns about data misuse or meeting the needs of residents (Odendaal, 2003; Hall et al., 2000). Equally minimal has been the participation of municipalities and citizens in building the Smart City. The effects are felt by the municipality, not by its population. The transition from a traditional form of governance to a digital form of supporting the governance of the municipal environment was the sole intention and goal.

Changes in the external and internal forms of local government have led to innovations in the Smart City idea. In addition to cybersecurity and population needs, the needs of the environment are also reflected (Ammara et al., 2022). Residents are becoming a natural and desired part of Smart City-related processes, not only as users but also as co-creators. This position is significant, especially given the absence of the issue of systematic training and development of management skills of local government representatives. However, we believe that it is important to pay attention to the quality of local government management and to achieve growth and development of its qualitative aspect.

A critical look at the disadvantages of the Smart City concept constitutes a threat and an opportunity at the same time. There is little economic impact and few effects to evaluate. No comprehensive consideration of the needs of society is given. Most studies focus on and present the positive functions that Smart Cities can bring to cities and citizens.

Very few studies describe the disadvantages of smart city projects. We consider this shortcoming as an important element for future possible research. Likewise, the misconduct that has occurred in Smart City advocacy is not addressed or discussed. Good practice only points to outcomes with positive impact. Negative impacts are hidden or not given attention, which we consider a threat. We assume that in certain cases there may be not only economic but also social and societal decline. Revealing the error of understanding citizens' dissatisfaction with the Smart City may lead to the elimination of others. The automatically taken assumption that Smart Cities are a win-win is wrong. We see shortcomings, especially in the case of small and lagging units or underdeveloped units. In addition, specific and unique units may lose their identifying uniqueness. This raises the question of what Smart is and what it is not. Is Smart City about hard infrastructure or soft infrastructure? What is the ratio, the relationship, and the linkage?

If we look at the results, the hard infrastructure is clearly dominant. Here, we can state that it is the soft that lies behind the hard, without which it would be impossible to apply sophisticated technologies and provide sophisticated services. However, little attention is paid to the development and training of qualitative skills for local government representatives. It would be useful to pay attention to this initiative, both theoretically and practically. The ability to think critically and futuristically, to see the context, and to look for deeper socioeconomic and other contexts should be continuously enhanced. Only in this way can progress be made towards an efficient and intelligent city, which should not only serve but also create space for a full and safe life.

Conclusions

The article is based on the findings of a review of results published in the field of Smart City. The main limitations include the choice of keywords, registers, and methods used in this article. Based on the results, we can conclude that the European Union promotes the paradigm of ecological modernization and the effectiveness of eco-innovation, both in the private and public sectors and thus also within local governments. Studies also show tangible progress in the Smart City area within the eco dimension and in the search for solutions related to the protection of the whole community. The hard infrastructure is of greater interest than its soft counterpart. The theory of development of classic management skills is taken as an automatic part of running and managing. Attention regarding the application of new trends and smart policy is felt by both states of typical leadership format and their followers. The point of the Smart City and Eco Smart City concepts is the synergistic effect of inputs and outputs, while in green form reflecting the higher goals that cover all circumstances and areas of governance, production, and life in the area of sustainability. Sharing, sustainability-oriented innovations, and promotion of environmentalism are the trends that shape the Smart City. However, as it turned out, without a responsible approach, quality of representatives, vision of units, and a change of mindset, it is a very difficult path. For future studies, it is necessary to dedicate the Smart City area to the management process of Smart City, to conduct surveys and studies dealing with the impact of smart management and smart progress, as well as to make all the healthy impulses available to be adopted by their new subjects.

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ZARZĄDZANIE INTELIGENTNYM MIASTEM

Streszczenie: Smart City to filozofia bezpiecznego, wydajnego i otwartego miasta, które wykorzystuje technologię i wiedzę, aby reprezentować nowy model dla miast przyszłości. Wizją Smart City jest połączenie inteligentnych modeli, inteligentnych IT i inteligentnych praktyk zarządzania, które jakościowo pomagają jednostkom samorządu terytorialnego przyspieszyć świadczenie usług w obszarach infrastruktury, środowiska, edukacji, zdrowia, integracji społecznej i innych. Jednym z kluczowych filarów Smart City jest zarządzanie samorządem lokalnym. Modyfikacja umiejętności menedżerskich liderów samorządowych jest naturalną reakcją na politykę Smart City. Poprzez połączenie najlepszych praktyk, systemów i polityk można osiągnąć wyższe cele Smart City, co stanowi istotę i intencję tej filozofii. Głównym impulsem do napisania tego artykułu była ambicja zidentyfikowania aktualnych trendów w zarządzaniu inteligentnym miastem. Cele szczegółowe dotyczą odpowiedzi na pytania związane z rozwojem zagadnień Smart City, identyfikacją umiejętności Smart menedżerów samorządowych, wdrażaniem praktyk Smart oraz mapowaniem wyzwań Smart City. Metodami stosowanymi w niniejszym opracowaniu są: przegląd aktualnego stanu wiedzy, poszukiwanie odpowiedniej literatury i studiów przypadku, podsumowanie wyników, indukcja, dedukcja i inne, które pomogły osiągnąć założone cele.

Słowa kluczowe: innowacje, zarządzanie, inteligentne miasto

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ANALYSIS OF IMPACT OF EDUCATIONAL ATTAINMENT ON ECONOMIC PERFORMANCE IN VISEGRAD GROUP COUNTRIES

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Abstract: The Visegrad Group countries are often cited as an example of a successful transition from a centrally planned economy to a market-based one. Education is crucial in enhancing the quality of human capital, which directly impacts a country's economy. The paper addresses the impact of educational attainment on the gross domestic product in the Visegrad Group countries. To assess the educational attainment of economically active persons, the Educational Attainment Index was calculated. The period analysed is the time from 2005 to 2020. Changes in the share of economically active persons with tertiary education were examined, with the best values achieved in Poland compared to other countries. Poland outperformed the remaining Visegrad Group countries in terms of the Educational Attainment Index, but Slovakia and the Czech Republic also managed to perform above the EU average. In terms of gross domestic product per capita, the Visegrad Group countries showed values below the EU average throughout the studied period. The analysis found that Poland had the highest Pearson correlation coefficient between the education index and gross domestic product per capita among the four countries and the EU average.

Keywords: economic performance, education, gross domestic product, human resource, Visegrad Group countries

JEL Classification: I21, I25, J21, E24

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Introduction

The Visegrad Group (Visegrad Four – V4) is comprised of Poland, Hungary, the Czech Republic and Slovakia, established via a declaration signed at a meeting by the top representatives of these countries on 15 February 1991. The Visegrad Group is an informal grouping of four Central European countries that share similar values, history, culture, and geography. According to Bieszk-Stolorz and Dmytrow (2020), the aim of the meeting was to establish cooperation for the purpose of joint integration with the European Union and the Atlantic zone. It was agreed that joint actions would be consulted and coordinated and mutually supported in the international arena. These countries had convergent foreign policy objectives and similar possibilities to achieve them. The Visegrad countries are now regarded as an example of a successful transition from a centrally planned to a market economy. Institutional reforms and technological changes were implemented in the quality of human capital and fiscal stabilization policy. These changes supported modernization and increased competitiveness in the globalized economy. Sufficiently qualified human resources are prerequisites for the long-term sustainable economic growth of states and their competitiveness on an international scale. Human resources and their educational structure are considered important indicators of the overall maturity and development of a country. Several scientific studies have confirmed that the educational level of human resources affects the economic results of states and regions, which is reflected in their economic performance. In the paper, the impact of the educational attainment of economically active persons on the economic performance of the Visegrad Group countries in the period 2005-2020 is examined.

Literature overview

Human resources play a vital role in the labour market, contributing significantly to the development and economic growth of a country. Macro-terms (Ningsih et al., 2022), development input factors, such as natural, material, and financial resources will not provide optimal benefits for the improvement of people's welfare if not supported by an adequate availability of human resources factors, both in quality and quantity. According to Batarlienė et al. (2017), the term human resources is used both in the business environment and in reference to people working in organisations. Human resources (employees) are the most important assets and valuable resources in the company’s performance. Employees are important since their knowledge, experience and skills increase the value of an organization in the market. The ability of human resources to provide skilled labour to various extents ensures the successful implementation of a country's economic policy.

The accession of the Visegrad Group to the EU had a positive impact on their labour markets, as confirmed by research by Bieszk-Stolorz and Dmytrow (2020). Changes in the labour market resulted in the creation of a knowledge-based economy. Having informed human capital is crucial for better economic growth in today's era of globalization as claimed by Islam et al. (2016). Several external and internal factors can influence the formation and quality of human capital. According to

Tchanturia et al. (2015), the conditions and quality of life of the population are among the external factors which depend on the average level of income and subsistence, access to health care, education, dynamics of labour migration, the existence of job opportunities, the necessary qualifications, and the state's policy on social security and support for the cultural development of the population. That is why the educational attainment of a country's population has been viewed as a significant measure of the overall maturity and development of a country. Rakytová (2019) and Karšay (2019) maintain that the quality of education affects the skills level of the adult population, the composition of the workforce, and the quality of the business environment.

Bobáková (2018) suggests that education is crucial for both individual growth and societal progress. It shapes a person's potential and career opportunities, but also contributes to economic development. Education is more important than ever, as it is essential in the new economy, which is characterised by the widespread use of innovative technologies. The education of the next generation is dependent on the quality of education and spending on education. The result should be emotionally mature, independent, critically thinking individuals with valuable skills applicable in new economy. Just as educational attainment affects economic growth, economic growth affects both the retention of existing jobs and the creation of new jobs. Therefore, research and development comprise some of the main sources of new knowledge creation through human capital (Lelek, 2014). It can be regarded as one of the most important sources of competitiveness. Bilan et al. (2020) argue that the main factor shaping intellectual potential is the higher education system and research, with government funding playing a significant role at both the higher and lower education levels. The impact of such investments should be positive in the context of the economic results achieved and their impact on future developments.

Widarni and Bawono (2021) believe that innovative human capital is an important factor for the rapid development of the knowledge economy and technology. Employees are no longer seen as mere resources, but as an important asset for the continuity and development of the company. This is the era of turning human resources into human assets known as human capital. The importance of education and tracking its development has necessitated the emergence of a new sub-discipline of educational demography, which focuses on the analysis of the relationship between education and demographic phenomena and processes (Barakat & Blossfeld, 2010). This discipline analyses human resources in the context of education (Moretti, 2002), especially in relation to forecasting the future demographic potential of states or their regions.

The development of human resources and their quality undoubtedly affect the economic performance of countries and regions, which is reflected in their economic performance. The gross domestic product (GDP) remains a key indicator of economic growth and development, despite alternative measures. The connection between GDP and the labour market is mutually dependent since the goods and services that constitute the essence of production are the result of the transformation process organized by the labour force (Húževka, 2023).

Education is a collective good and is essential for the overall development of any society and has a significant impact on its economic, cultural, and social aspects. Therefore, it requires more attention (Hronec & Vicianová Hroncová, 2014) Countries that prioritized education and promoted science and research in the past tend to achieve high innovation performance and have low unemployment rates. Public spending on education and science is crucial. In their paper, Štrangfeldová and Mališová (2021) attempted to identify whether there are disparities in the highly qualified workforce in terms of funding and numbers between the countries of the European Union. The assessment of public spending on tertiary education revealed disparities among EU countries when economically strong European countries diverge. Numerous studies have addressed the impact of public spending on education on GDP. The study by Torruam, Chaiwa and Abur (2014) investigated the relationship between the public spending on tertiary education and economic growth in a country. The study found that the educational attainment of human capital has a significant impact on a country's economic growth. Zou (2016) analysed the correlation between GDP growth and education spending in China and determined that in the short term, GDP growth contributed significantly to the increase in public education spending. The impact of non-economic factors such as science and higher education and the innovation index on GDP per capita in European countries, Turkey and Israel was investigated by Panić et al. (2022). Their results suggest that elements of science and the quality of higher education greatly affect the size of GDP per capita in the studied countries. Similar research was carried out in South-Eastern Europe by Popović et al. (2020). The authors focused on assessing the impact of the education system, educational, scientific, and other institutions on economic growth in nine countries of South-Eastern Europe (SEE) and concluded that indicators of the state of educational and other institutions are positively correlated with GDP per capita growth.

Aim and methodology

The paper aims to assess the educational attainment of economically active individuals in the Visegrad Group nations compared to the EU27 average, as well as to examine the impact of educational attainment on the economic performance of these nations from 2005 to 2020.

In the literature, various methods are used to assess educational attainment. In the paper, the share of employed persons with tertiary education and the Educational Attainment Index are used to assess educational attainment. In the case of the Educational Attainment Index (coefficient), several methods of its calculation are presented in the literature (Kulčár, 2010). In the paper, the following method will be employed:

$$EAI = \frac{1 \times EDU_{0-2} + 2 \times EDU_{3-4} + 3 \times EDU_{5-8}}{employed\ (working)\ population} \qquad (1)$$

Where:
EAI – Education Attainment Index of employed (working) population
EDU_{0-2} – Employed population with less than primary, primary and lower secondary education (levels 0-2)

EDU₃₋₄ – Employed population with upper secondary and post-secondary non-tertiary education (levels 3 and 4)
EDU₅₋₈ – Employed population with tertiary education (levels 5-8)

The index values range from 1 to 3. The value of 1 would indicate that the whole employed population has less than primary, primary and lower secondary education. Conversely, the value of 3 would indicate that the whole employed population has a tertiary education.

The impact of educational attainment on the economic performance of the Visegrad Group countries was measured using the Pearson correlation coefficient. This coefficient is commonly used to assess the strength of correlation between two quantitative variables and is one of the most common measures of linear dependence (Hebák, 2013).

Let us assume there is a linear dependence between the *X* and *Y* quantities. Let $(x_1, y_1),\ldots,(x_n, y_n)$ are the measured values of an independent random sample of the n range system of two *X*, *Y* random variables of the bivariate normal distribution and let $\bar{x}$ and $\bar{y}$ be their sampling averages. The following relationship holds for Pearson's sample correlation coefficient (PCC):

$$PCC_{x,y} = \frac{\overline{x.y} - \bar{x}.\bar{y}}{\sqrt{\overline{x^2} - (\bar{x})^2}.\sqrt{\overline{y^2} - (\bar{y})^2}} \quad (2)$$

where

$$\overline{x^2} = \frac{1}{n}\sum_{i=1}^{n} x_i^2,\ \overline{y^2} = \frac{1}{n}\sum_{i=1}^{n} y_i^2,\ \overline{x.y} = \frac{1}{n}\sum_{i=1}^{n} x_i . y_i, \quad (3)$$

Pearson's sample correlation coefficient $r_{x,y}$ measures the tightness of the linear relationship between the X and Y variables on both sides, i.e. $r_{x,y} = r_{y,x} = r$.

Pearson's sample correlation coefficient takes values from the $(-1; 1)$ interval and expresses the degree of linear correlation between the X and Y variables. The closer $PCC_{x,y}$ is to 1, the stronger the linear dependence is and the closer $PCC_{x,y}$ is to 0, the weaker the linear dependence is (Ostertagová, 2013).

Following PCC, the coefficient of determination (CD) was calculated. The coefficient of determination represents the proportion of common variance, i.e. what percentage change in one variable affects the other. It provides information about the strength of the relationship between the variables. The following formula was used to calculate the coefficient of determination:

$$CD_{x,y} = PCC^2 \quad (4)$$

To conduct the research, several methods including descriptive statistics, time period analysis, comparison and synthesis were used. The data from the Eurostat database were utilized for the time period analysis.

Results

This section explores the educational attainment and economic performance of the Visegrad Group countries. The educational attainment of the economically active population was analysed, followed by the gross domestic product per capita indicator as a measure of economic performance. Moreover, the dependence of educational attainment and economic performance of the Visegrad Group countries and EU27 was investigated.

Educational level of the working population in the Visegrad Group countries

Tertiary education (TE) access expansion is a prevalent trend in developed countries. It is endorsed and supported by national governments. In the European Union, this policy was also promoted at a supranational level, with a clearly articulated target of having at least 40% of people aged 30 to 34 in TE by 2020. This was also one of the main objectives of Europe in the 2020 Strategy (Štefánik & Horvát, 2015). In this context, we conducted an analysis of the share of employed persons with tertiary education in the total number of employed persons. Changes in this indicator from 2007 to 2020 in all the Visegrad Group countries and the EU27 are shown in Figure 1.

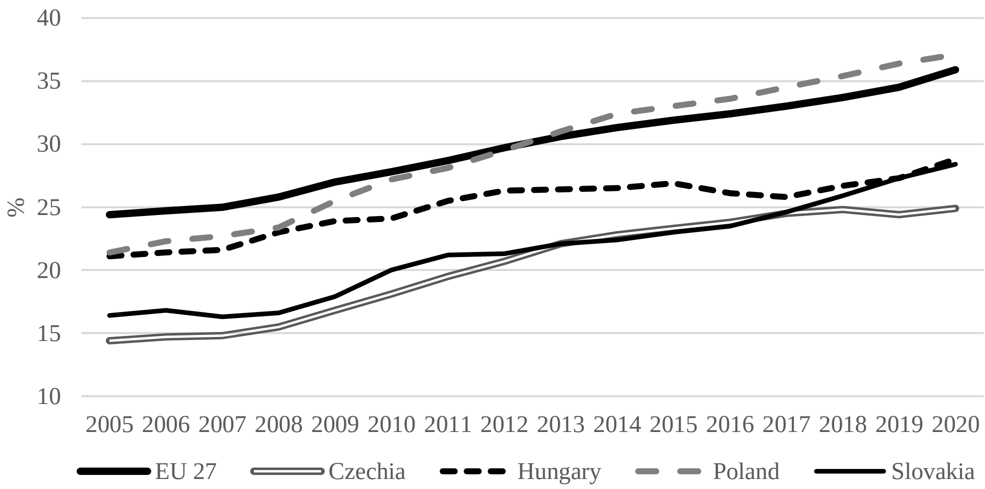

Figure 1. Share of employed persons with tertiary education in Visegrad Group countries

Source: Eurostat (2023), authors' own graph

Until 2012, not a single V4 country reached the level of the EU27 average in the share of tertiary-educated employed persons. Over the period under analysis, only Poland managed to reach a level slightly above the EU27 average since 2013. The Czech Republic showed the lowest values especially since 2018. In 2018 it shows a value of 25.9% and in 2019 even a decrease to 24.4%.

Over the period under analysis, the share of tertiary-educated economically active persons increased most significantly in Poland, by 15.70 p.p., while in the EU27 it was 11.5 p.p. Slovakia achieved an increase of 12 p.p., but Hungary only by 7.7 p.p.

Educational attainment is one of the basic characteristics used to assess the cultural level and quality of human capital among different population groups. To assess the educational attainment of the employed (working) population in the V4 countries, we calculated the Educational Attainment Index. The results are shown in Figure 2.

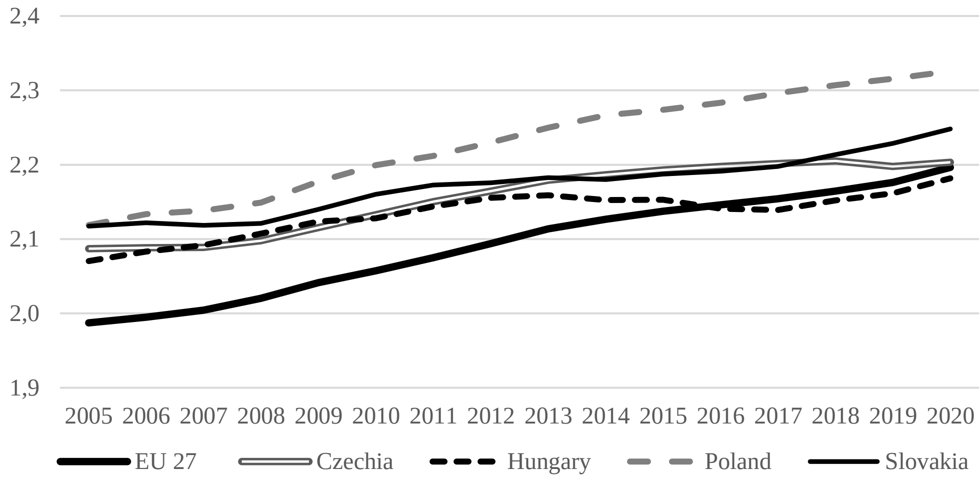

Figure 2. Educational attainment index of employed persons in Visegrad Group countries

Source: Eurostat (2023), authors' own calculations

The graph shows a positive trend in the Education Index, mainly in Poland and Slovakia. Until 2016, the Visegrad Group demonstrated better values than the EU27. The research indicates that Poland consistently displayed the best values in the time period, surpassing the other V4 countries and the EU27 average since 2014. In 2016, the EU27 reached a value of 2.15 and Hungary only 2.14, which puts it below the EU27 level until 2020. Despite a slight growth experienced by Poland, Slovakia, Hungary and the EU27, the Czech Republic stagnated and even declined in the educational attainment index in 2019. Between 2005 and 2020, the education index in the EU27 and Poland increased by 0.21, on the other hand, Hungary recorded the lowest increase in the index, by 0.11.

Economic performance of Visegrad Group countries

Macroeconomic theory claims that the gross domestic product is one of the most important indicators that shows and evaluates the economic development in a country (Kovárník & Hamplová, 2016). GDP per capita is often used as an indicator to express the average real income per person in a country. The evolution of GDP per capita in the Visegrad countries is illustrated in Figure 3.

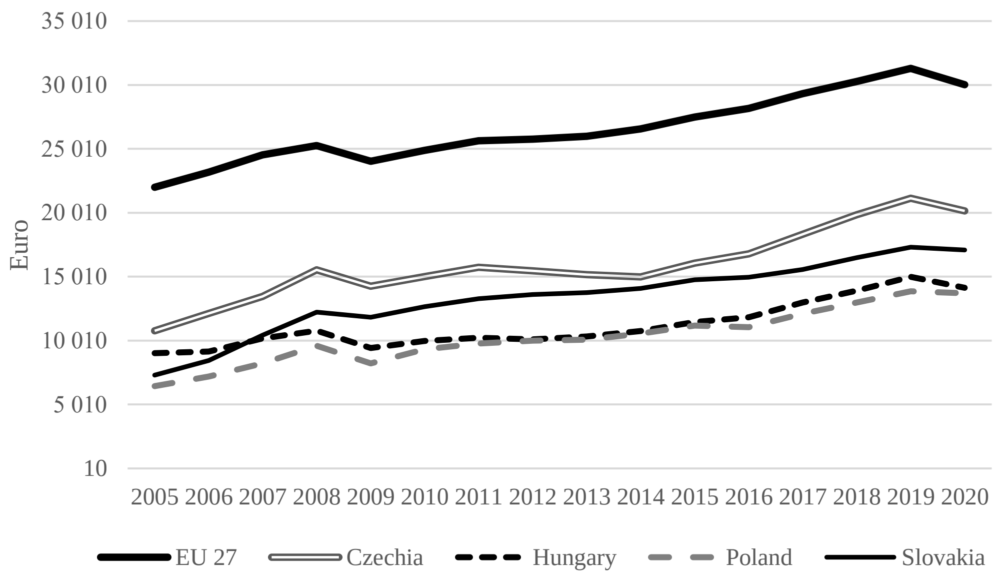

Figure 3. GDP per capita in Visegrad Group countries

Source: Eurostat (2023), authors' own graph

From 2005 to 2020, no Visegrad Group country reached the level of the EU27 average in terms of GDP per capita. Figure 3 shows the fluctuations in GDP per capita in both the 2009 financial crisis and the COVID-19 pandemic in 2019. The former crisis was caused by the financial industry's meltdown, while the latter was due to a non-economic trigger. The Czech Republic had the best values over the whole period, followed by the Slovak Republic. Hungary and Poland had roughly the same values between 2012 and 2015, and the situation in 2016 was slightly in Hungary's favour, and in 2020 GDP per capita was about EUR 420 in Hungary's favour.

Assessment of the impact of educational level on the performance of the Visegrad Group countries

The Pearson correlation coefficient was used to assess the impact of the educational attainment of the V4 countries on their performance. The results are shown in Table 1.

Table 1. Dependence of educational attainment and economic performance

	EU 27	**Czechia**	**Hungary**	**Poland**	**Slovakia**
PCC	0.9360	0.8113	0.6579	0.9438	0.9293
CD	0.8761	0.6583	0.4329	0.8907	0.8636

Source: Authors' own calculations

Based on the results of the Pearson correlation coefficient, a direct correlation between educational attainment and economic performance can be concluded. The highest values of the coefficient were in Poland, Slovakia, and the EU27. A high positive dependence was also found in the Czech Republic. In the case of Hungary, the Pearson correlation coefficient reached the value of 0.6579 over the specified time frame. The result indicates a moderate level of dependence between the variables.

The coefficient of determination results shows that in the case of Poland, 89% of the variability was explained by the given linear model, while in the case of Hungary, only 43% of the variability was explained by the given linear model.

Conclusions

Economic growth is affected by a variety of factors explored by many researchers and authors and our aim was to add to their work. Numerous studies have investigated the relationship between public expenditure on education and science funding or the impact of educational attainment on job creation. Previous research has shown that a factor influencing the formation of intellectual potential is the higher education system and research, which is influenced by government spending at all levels of education. In the same way, we consider the educational structure of the population an important measure of a country's development and maturity. It prompted us to contribute to the ongoing scientific discourse with our research results on this subject matter. The study evaluates the educational attainment of the economically active population in the V4 nations in contrast to the EU27 average during 2005 and 2020. It also investigates the impact of educational attainment on their economic performance. To achieve our goal, we monitored several variables, including the educational attainment index. While the index does not reflect the quality or efficiency of educational institutions in a particular place, it is closely linked to economic or social topics related to education and the labour market. The following conclusions emerged from our research:

– In the share of economically active persons with a tertiary education indicator in the V4 countries until 2012, no V4 nation reached the level of the EU27 average. During the time period analysed, only Poland managed to do so. Poland has been slightly above the EU27 average since 2013. Poland experienced the largest increase in tertiary-educated economically active population (by 15.70 p.p.) compared to the EU27 average of 11.5 p.p. Slovakia saw a 12.0 p.p. increase, while Hungary experienced a rise of only 7.7 p.p.
– In the Education Index, which is used to assess the educational attainment of economically active persons, a positive trend, especially in Poland and Slovakia, was observed. Between 2005 and 2020, the educational attainment index in the EU27 and Poland increased by 0.21, whereas Hungary recorded the lowest increase (by 0.11).
– GDP per capita: in the period from 2005 to 2020, the V4 nations failed to reach the EU27 average. Among the four nations, the Czech Republic performed the best throughout the period, followed by the Slovak Republic. The correlation

coefficient analysis highlights Poland, Slovakia and the EU27 as having the highest correlation between educational attainment and economic performance, which is seen as a positive piece of information. A high positive dependence was also found in the Czech Republic. The situation was different in the case of Hungary with the Pearson correlation coefficient of 0.6579, i.e. a moderate dependence.

We are aware that the evaluation of human resources based only on the level of education is narrow, and that the level of human resources is influenced by many other factors and specificities of the given state in addition to the educational level. There is a need for more research into education and educational attainment on economic growth and performance, both at the macro and enterprise levels, including human resource management and enterprise performance. In further research, we would like to focus on the multi-criteria evaluation of human capital based on quantitative and qualitative indicators and its impact on economic performance and competitiveness.

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ANALIZA WPŁYWU WYKSZTAŁCENIA NA WYNIKI GOSPODARCZE KRAJÓW GRUPY WYSZEHRADZKIEJ

Streszczenie: Kraje Grupy Wyszehradzkiej są często przytaczane jako przykład udanego przejścia od gospodarki centralnie planowanej do gospodarki rynkowej. Edukacja ma kluczowe znaczenie dla podnoszenia jakości kapitału ludzkiego, który bezpośrednio wpływa na gospodarkę kraju. Artykuł dotyczy wpływu wykształcenia na produkt krajowy brutto w krajach Grupy Wyszehradzkiej. Aby ocenić poziom wykształcenia osób aktywnych zawodowo, obliczono wskaźnik wykształcenia. Analizowany okres to szereg czasowy od 2005 do 2020 roku. Monitorowano zmiany udziału osób aktywnych zawodowo z wykształceniem wyższym, przy czym najlepsze wartości na tle innych krajów osiągnięto w Polsce. Polska wyprzedziła pozostałe kraje Grupy Wyszehradzkiej pod względem wskaźnika wykształcenia, ale Słowacja i Czechy również uplasowały się powyżej średniej unijnej. Pod względem produktu krajowego brutto per capita kraje Grupy Wyszehradzkiej wykazywały wartości poniżej średniej unijnej w całym badanym okresie. Analiza wykazała, że Polska ma najwyższy, spośród czterech krajów, współczynnik korelacji Pearsona między wskaźnikiem wykształcenia a produktem krajowym brutto na mieszkańca oraz średnią unijną.

Słowa kluczowe: wyniki gospodarcze, wykształcenie, produkt krajowy brutto, zasoby ludzkie, kraje Grupy Wyszehradzkiej

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JAKOŚĆ USŁUG IT W BRANŻY E-COMMERCE

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Streszczenie: Coraz szybszy rozwój technologiczny sprawia, że zaciera się granica między światem rzeczywistym a wirtualnym. Ludzie coraz częściej korzystają z sieci Internet, przeglądając zawartość serwisów społecznościowych (np. Facebook) czy platform oferujących treści wideo (np. YouTube) oraz szukając informacji o interesującej użytkownika tematyce na blogach czy forach internetowych. Aby uzyskać dostęp do tych wszystkich treści, należy mieć możliwość podłączenia do sieci Internet. Upowszechnienie dostępu do Internetu, coraz niższy koszt jego użytkowania oraz coraz szybsze łącza sprawiły, że biznes zaczął przenosić się częściowo lub całkowicie do wirtualnego świata, gdzie nie ma fizycznych granic w dostępie do nowych klientów i nowych rynków zbytu. W artykule omówiony jest temat jakości usług w branży e-commerce, która zajmuje się handlem dobrami i usługami w sieci Internet. Artykuł składa się z części teoretycznej, w której na podstawie kwerendy literatury poruszone są kwestie związane z genezą jakości, interpretacją jakości usług oraz opisem wybranych metod badania jakości usług. W tekście opisany jest rozwój i jakość usług cyfrowych na przykładzie czołowych przedsiębiorstw technologicznych. Druga część opracowania prezentuje wyniki badań przeprowadzonych wśród pracowników branży IT, które dotyczyły rozumienia jakości usług, czynników na nią wpływających, reakcji na niezadowolenie klientów oraz oceny jakości usług świadczonych przez przedsiębiorstwa zatrudniające respondentów.

Słowa kluczowe: branża IT, e-commerce, jakość usług, usługi cyfrowe

Kod klasyfikacji JEL: L80, L81

Wprowadzenie

Branża e-commerce stała się ważnym elementem dzisiejszego handlu. Dzięki wirtualnym sklepom zakupy stały się bardziej wygodne dla klienta z uwagi na możliwość ich dokonania z domu przy pomocy urządzeń z dostępem do Internetu. Szczególny

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wzrost znaczenia handlu elektronicznego można zauważyć w czasie pandemii COVID-19, gdy większość sklepów online z uwagi na obostrzenia musiała realizować wzrastającą liczbę zamówień. Rozwój e-commerce nie byłby możliwy bez branży IT, która stanowi fundament handlu elektronicznego. To od jakości usług IT zależy, czy klienci będą w stanie dokonać zakupów w wybranym sklepie internetowym. Warto zaznaczyć, iż w kontekście historycznym termin „jakość" po raz pierwszy został odnotowany w Kodeksie Hammurabiego, który został spisany w XVIII w. p.n.e. (Tyborowski, 2019). W tamtym czasie to zagadnienie dotyczyło odpowiedzialności budowlańca za złą jakość wykonanej pracy. W przypadku gdy nieodpowiednia jakość budowli była powodem śmierci jej właściciela, sam budowniczy musiał ponieść tę samą karę, czyli śmierć (Tochman, 2009). Obecnie jakość jest rozumiana inaczej i regulowana na poziomie międzynarodowym chociażby poprzez normy ISO. Jak zaznacza Hamrol (2005), norma ISO 9000:2000 przyjęła następującą definicję: „Jakość oznacza stopień, w jakim zbiór inherentnych właściwości spełnia wymagania". Jakość może mieć charakter materialny, jak i niematerialny. Do wymiaru niematerialnego można zaliczyć sferę jakości usług IT w branży e-commerce, ponieważ trudno jest ją zmierzyć przy pomocy fizycznych miar.

Coraz powszechniejszy dostęp do usług cyfrowych sprawia, iż ich jakość coraz bardziej zyskuje na znaczeniu. Przedsiębiorstwa działające w obszarze e-commerce, chcąc: zwiększać swoje zyski, utrzymać swoją pozycję na rynku, polepszyć swój wizerunek, muszą dbać o najwyższą jakość świadczonych usług, między innymi opierając się na sektorze IT.

Celem niniejszego artykułu jest zbadanie, jak pracownicy IT w województwie śląskim interpretują termin „jakość usług", co ich zdaniem wpływa na jakość usług, czy dysponują odpowiednimi narzędziami, dzięki którym mogą świadczyć usługi na wysokim poziomie, oraz czy mają możliwość rozwoju w obszarach, które pozwalają im nie tylko pozyskać nowe doświadczenie zawodowe, ale i zwiększyć jakość świadczonych przez nich usług.

Jakość usług

Pojęcie „jakość usług", podobnie jak termin „jakość", może być różnie definiowane i interpretowane, ale zazwyczaj przyjmuje się, iż jest to stopień spełnienia wymagań danego klienta względem wybranej przez niego usługi. Garvin (1984) przedstawił swój punkt widzenia na temat jakości. Jego rozumienie tego pojęcia opiera się na koegzystujących ze sobą koncepcjach. Z tych interpretacji do obszaru jakości usług można zaliczyć ujęcie jakości jako coś idealnego, przekraczającego granice umysłu, czyli odnoszącego się do transcedentalności. Inne spojrzenie Garvina, jakie można przypisać do jakości usług, dotyczy oceny jakości pod względem cenowym, gdzie jakość ukierunkowana jest na klienta i to nabywca ją ocenia za pomocą emocji. Oznacza to, że każdy klient kieruje się indywidulanym podejściem i dana ocena jest jego osobistą perspektywą.

Inne interpretacje tego pojęcia przedstawiła Stoma (2012), która określiła jakość usług jako:

– konfrontację między przewidywaniem klienta a właściwościami danej oferty usługi;
– coś niedoskonałego, gdyż może być hierarchiczna i w zależności od potrzeb klienta może być w odmiennej skali wystraczająco dobra bądź poniżej normy;
– coś niestatycznego, ulegającego pewnym przeobrażeniom, ponieważ jest związana w pewnym stopniu z sytuacją, jaka panuje na rynku i dotyczy preferencji, jakie w nim zachodzą.

Każda świadczona usługa jest swego rodzaju wizytówką przedsiębiorstwa, gdyż od jakości jej świadczenia będzie zależał jego dalszy rozwój. Jak wskazują Urbaniak (2004) i Kotler (1999), do cech, jakie uwidaczniają poziom świadczonych usług lub mogą być czynnikami, które je determinują, można zaliczyć między innymi:

– kwestie niezawodności świadczonej usługi i fakt, czy będzie ona równorzędna z tą ofertą, jaka została zobrazowana klientowi;
– rzetelność świadczonej usługi;
– fachowość świadczącego usługi, która opiera się nie tylko na jego umiejętnościach, ale i również na posiadanej przez niego odpowiedniej wiedzy;
– poziom poprawnej interpretacji potrzeb klienta, jak i jego samego;
– bezproblemowość w uzyskaniu usługi;
– przystępną komunikację z usługodawcą;
– ograniczenie ryzyka względem nabywcy;
– bezpieczeństwo usługi;
– prowadzenie z nabywcami poprawnej komunikacji przy pomocy przekazywania zrozumiałych informacji do klienta i przysłuchiwaniu się jego opinii.

Metodyki oceny jakości usług

Nieustanny rozwój sfery usług wymagał stworzenia odpowiednich podejść, które by obrazowały w sposób rzeczywisty poziom ich jakości. Do takich metod można zaliczyć między innymi: Servqual, model jakości usług Grönroosa, benchmarking i wiele innych. W niniejszym opracowaniu skupiono się na wybranych metodach, które należą do grupy tych najbardziej znanych i rozpowszechnionych.

Servqual to metoda pomiaru jakości usług, w ramach której dokonuje się badań przy pomocy zestawień odnoszących się do porównania oczekiwań, jakie klient ma względem danej usługi, z otrzymaną usługą. Oznacza to, że Servqual sprawdza i porównuje poziom usługi przed jej otrzymaniem, jak i po jej otrzymaniu. Dziadkowiec (2006) wskazuje na pięć następujących luk zdefiniowanych przez autorów metody, które wpływają na mniejsze zadowolenie z danej usługi, co jednocześnie przekłada się na niską jej ocenę:

– Luka 1 dotyczy rozbieżności, jaka zachodzi między tym, czego oczekuje klient, a tym, jak to oceni zarząd przedsiębiorstwa.
– Luka 2 koncertuje się na różnicach zachodzących pomiędzy punktem widzenia od strony nabywcy przez zarząd przedsiębiorstwa a normami odnoszącymi się do istoty usługi.

- Luka 3 skupia się na przeciwieństwach w obrębie jakości faktycznie wykonanej usługi i wymagań jakości danej usługi.
- Luka 4 opiera się na różnicy między informacjami, którymi dysponuje nabywca odnośnie usługi, a jakością dostarczanej usługi.
- Luka 5 dotyczy różnicy, jaka zachodzi między wizją klienta odnośnie usługi a stopniem jej realizacji według jego wymogów czy oczekiwań.

Twórca omawianej metody pomiaru jakości usług, Grönroos, uważał, że sama usługa, podobnie jak i jakość usług, jest subiektywna, czyli indywidualna dla każdego nabywcy i zgodna z jego przeświadczeniami czy uczuciami. Jego metoda pokazuje, że na postrzeganą jakość usługi, czyli tę rzeczywiście otrzymaną przez nabywców, ma wpływ porównanie, jakiego dokonuje klient między otrzymaną usługą a tym, czego od niej oczekiwał. Grönroos wyróżnił dwa obszary, jakie mają wpływ na jakość usługi. Zalicza się do nich jakość techniczna i funkcjonalna. Jakość techniczna to techniczny wynik przebiegu udzielanej usługi, natomiast jakość funkcjonalna skupia się na podejściu do udzielonej usługi (Otto, 2001).

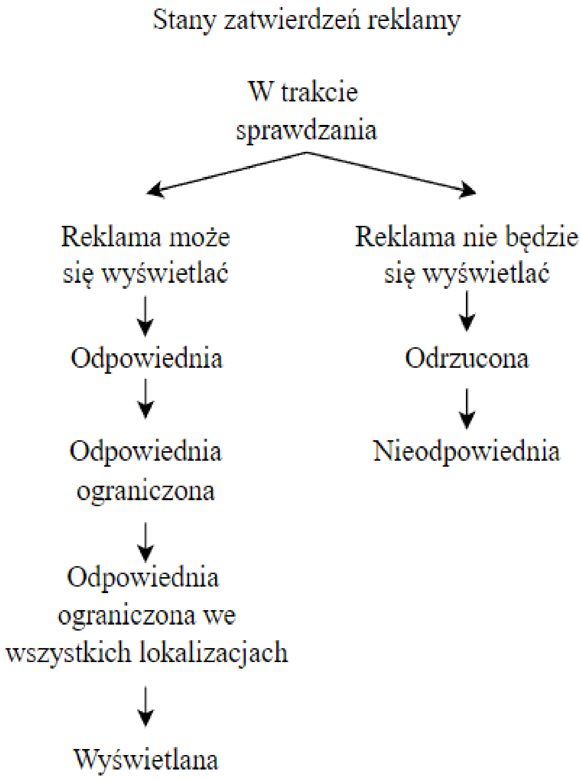
Benchmarking to metoda, której działanie opiera się na ciągłej walce między przedsiębiorstwami o status tego najlepszego w gronie innych w danej branży. Innymi słowy benchmarking prowadzi do konfrontacji między konkurującymi ze sobą przedsiębiorstwami w celu wyłonienia jednego lidera w danym sektorze działalności lub zbliżeniu się do takiej pozycji. To sprawia, iż mniejsze lub słabsze przedsiębiorstwa, chcąc się doskonalić, mogą zapożyczać rozwiązania od konkurencji (Siemonek & Siemionek, 2015). Taka rywalizacja jest korzystna dla konsumentów, gdyż nie stwarza monopolu, czyli sytuacji, gdzie przedsiębiorstwo między innymi ustala cenę za swoje usługi lub wyroby w sposób dla siebie dowolny. Pojawienie się monopolu może sprawić, iż nie będzie tendencji do redukcji kosztów i jednocześnie pojawi się zastój we wdrażaniu nowości na rynku (Raczyński, 2001). Przez monopol może obniżyć się jakość oferowanych dóbr, jak i usług, ponieważ nie ma konkurencji, która mogłaby przejąć niezadowolonych klientów. Warto w tym miejscu zaznaczyć, że sytuacja taka może dotyczyć każdego sektora gospodarki. Dlatego idea benchmarkingu, polegająca na trwałym i ciągłym badaniu usług czy wyrobów w poszczególnych sektorach przez przedsiębiorstwa, które są dla siebie wzajemnie konkurencyjne, sprawia, że każde z nich będzie starało się ulepszać swoją ofertę i dążyć do objęcia pozycji lidera. Warto podkreślić, że stosując benchmarking, przedsiębiorstwa analizują również podejścia czy procedury, jakie są wykorzystywane w konkurencyjnych przedsiębiorstwach, które jednocześnie są przodownikami danej branży, aby nie odstawać od nich, jak również likwidować lub minimalizować skutki pewnych niedociągnięć we własnych podmiotach gospodarczych. Benchmarking, podobnie jak Kaizen, dąży do ciągłego doskonalenia i wprowadzania kolejnych usprawnień. Te metody skupiają się między innymi na aspektach związanych ze zdobywaniem doświadczenia, wiedzy od liderów w danym obszarze działalności, ciągłej konfrontacji z przedsiębiorstwami, które znajdują się w gronie tych najlepszych, na szukaniu instrumentów, jakie pozwolą osiągnąć przedsiębiorstwu lepszą pozycję na rynku w porównaniu z konkurencją oraz na nieustannym dokonywaniu ocen porównań swoich usług czy wyrobów w stosunku do czołowych konkurentów (Mroczko, 2012).

Rozwój i jakość usług cyfrowych

Wraz z dynamicznym rozwojem i coraz powszechniejszym dostępem do sieci Internet pojawiły się nowe możliwości, dzięki którym szeroko rozumiany biznes mógł zwiększyć swoje udziały na rynku lokalnym oraz rozpocząć globalną ekspansję. Do branży, która powstała wraz z rozwojem Internetu, zaliczamy e-commerce. Według Goel (2007) e-commerce to inaczej handel elektroniczny, dzięki któremu można prowadzić działalność gospodarczą bez konieczności autentycznego posiadania przedmiotu handlu. W tej formie handlu transakcje mogą odbywać się elektronicznie przy pomocy komputera. E-handel jest w stanie zaspokoić wymogi np. konsumentów czy handlowców poprzez podniesienie poziomu jakości usług lub dóbr materialnych przy równoczesnym obniżeniu kosztów. Dzięki e-commerce pojawiła się możliwość dotarcia do większej rzeszy klientów, oferując im usługi oraz zakup i sprzedaż wielu towarów. Przykładem przedsiębiorstwa e-commerce, które dzięki powszechnemu dostępowi do Internetu stało się globalną marką, jest np. Amazon. Strona internetowa Amazona została uruchomiona 1995 roku (Wedevs.com, 2022). Był to czas, kiedy Internet stawał się coraz bardziej dostępny, a jego możliwości nie były w pełni poznane. Początkowo założyciel przedsiębiorstwa, Jeff Bezos, skoncentrował się na sprzedaży książek, gdyż w tamtym okresie był to dość duży rynek w Stanach Zjednoczonych. Z uwagi na konieczność znalezienia interesującej pozycji w danej księgarni, a następnie jej zakupu w stacjonarnej księgarni, klient musiał poświecić na to dużo czasu. Można wyjść z założenia, że twórca Amazona zauważył znacznie wcześniej niż konkurencja potencjał Internetu oraz brak konkurencji w tym segmencie. Amazon, jako wirtualna księgarnia online, mógł zaoferować jednoczesny dostęp do znacznie większej ilości książek w jednym miejscu niż chociażby konkurencyjne stacjonarne księgarnie (Stodolak, 2021). Dzięki portalowi internetowemu Yahoo rozpoznawalność Amazona, jak i liczba zamówień znaczącą wzrosły. Yahoo dało impuls, który sprawił, że przedsiębiorstwo zaczęło notować coraz większe zyski ze sprzedaży, a udział rynkowy Amazona znacząco się zwiększył. Należy podkreślić, że nie byłoby tych sukcesów, gdyby przedsiębiorstwo świadczyło usługi, które nie spełniają oczekiwań klienta, czyli byłyby niskiej jakości. Bezos, tworząc stronę internetową, kierował się faktem, że ma ona mieć przede wszystkim czytelny interfejs, a realizacja dostaw ma być szybka. Amazon oparł swoją strategię na podejściu, w którym najważniejszy jest klient i to przede wszystkim on musi być zadowolony z jakości usług. Już w początkowym okresie działalności Amazon zatrudniał kompetentnych pracowników, np. będących po studiach, ponieważ to oni mogli sprawnie i w krótkim czasie znaleźć interesującą pozycję książkową (Sky-Shop, 2018). Na jakość usług w przypadku Amazona składa się wiele czynników. Zalicza się do nich: dział obsługi klienta, bez którego w początkowym okresie przedsiębiorstwo nie mogłoby zbudować silnej pozycji; przejrzysta strona internetowa, gdzie klienci mogą wygodnie dokonać zakupów; wdrażanie innowacji, które ułatwiają dokonanie zamówienia, oraz sprawna i szybka dostawa towaru do klienta. Wiele z tych czynników bazuje na technologiach z sektora IT, które pozwalają na ich efektywne działanie i funkcjonowanie. Dzięki dostępowi do Internetu, jak i infrastrukturze informatycznej Amazon może działać nieprzerwanie przez cały rok 24 godziny na dobę, realizując zamówienia. Przedsiębiorstwo na swojej stronie internetowej przedstawia kilka stanowisk pracy z obszaru IT, na których często są zatrudniani nowi pracownicy. Od pracowników na danych stanowiskach zależy sprawne funkcjonowanie przedsiębiorstwa, co gwarantuje wysoką jakość świadczonych usług. Do takich stanowisk zalicza się między innymi inżyniera: systemów informatycznych, sieci, wsparcia technicznego, wsparcia sieci (AmazonJobs.pl, b.r.).

Kolejnym znaczącym przedsiębiorstwem, bez którego dzisiaj trudno wyobrazić sobie korzystanie z sieci Internet, jest Google. Przedsiębiorstwo rozpoczęło oficjalną działalność w 1998 roku. Początkowo Google było wyszukiwarką stron internetowych, która była i nadal jest darmowa. Wskutek rozwoju sieci Internet warunkiem koniecznym, aby Google mogło zacząć na siebie zarabiać, było wprowadzenie zmian. Z tego powodu Google rozpoczęło działalność w sferze reklamy internetowej, tworząc serwis, który obecnie nosi nazwę Google Ads. Google Ads to rozbudowane narzędzie, dzięki któremu reklamodawcy mogą promować między innymi swoje usługi w serwisach należących do Google oraz na innych stronach internetowych. Obecnie Google Ads daje możliwość wyświetlenia danej reklamy w wybranym przez reklamodawcę obszarze, w którym będzie on poszukiwał potencjalnych klientów. W tym miejscu należy zaznaczyć, że polityka pobierania opłat została oparta na realnych interakcjach użytkowników z reklamą, za które pobierane są środki od reklamodawcy, np. za klikniecie w reklamę lub wykonanie telefonu do przedsiębiorstwa przy pomocy reklamy generującej połączenia. Serwis ten opiera się na kilku istotnych czynnikach, jakie bezpośrednio wpływają na jakość usługi. Do takich czynników zalicza się przede wszystkim proces zatwierdzenia reklamy. Każda reklama, zanim zostanie wyświetlona użytkownikom, musi przejść proces sprawdzenia. Proces ten polega na analizie reklamy pod kątem zgodności z zasadami Google Ads. Rozbudowany system zatwierdzeń stanów reklamy pozwala na odrzucenie reklam niskiej jakości bądź reklam o treści, która jest niezgodna z polityką przedsiębiorstwa, a tym samym może być nieodpowiednia dla użytkowników. Na Rysunku 1 został przedstawiony system zatwierdzeń reklam w Google Ads.

Tak rozbudowany system wskazuje na odpowiedzialne podejście przedsiębiorstwa Google do treści, jakie będą widniały w jego serwisach lub pod jego nazwą w sieci Internet. Z Rysunku 1 wynika, iż reklama, nawet będąc przypisana do grupy, gdzie może być wyświetlana, ma wiele podkategorii, które mogą nieść pewne ograniczenia. Dane podkategorie Google definiuje jako stany zatwierdzeń. W przypadku gdy Google stwierdzi, że reklama nie może być wyświetlana, reklamodawca będzie widział na koncie Ads status „odrzucona" lub „nieodpowiednia". Status reklamy „odrzucona" oznacza, że reklama nie spełniła zasad Google i nie będzie wyświetlana. Z kolei stan „nieodpowiednia" oznacza, że kampania reklamowa została usunięta, wstrzymana lub zakończyła się. Dany status odnosi się nie tylko do pojedynczej reklamy, ale i grupy reklam (Support.google.com. b.r.). Dzięki stosowaniu uczciwych i przejrzystych zasad reklamodawcy wiedzą, za co konkretnie płacą i czego mogą oczekiwać od usług tego serwisu.



Rysunek 1. Schemat zatwierdzeń reklam w Google Ads

Źródło: Opracowanie własne na podstawie (Support.google.com, b.r.)

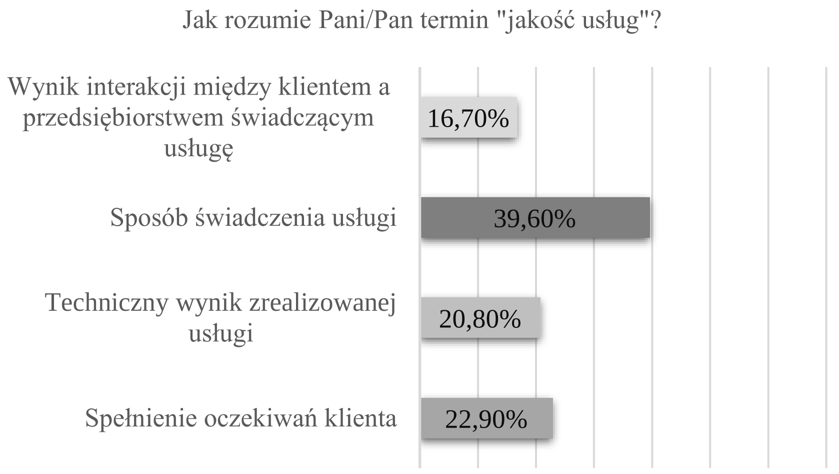
Omawiane narzędzie podlega ciągłym zmianom, aby zapewnić jak najlepsze rezultaty dla reklamodawców. Takie podejście pozwala utrzymać wysoki poziom usług i tym samym zwiększać dochody przedsiębiorstwa.

Metodyka badawcza

W ramach rozważania problematyki dotyczącej jakości usług IT w branży e-commerce przeprowadzono w czerwcu 2023 roku badania z wykorzystaniem autorskiego kwestionariusza ankietowego. Pytania zostały skierowane do pracowników sektora IT. Dane zostały zebrane w formie cyfrowej dzięki formularzowi Google. Kwestionariusz zawierał pytania o charakterze jakościowym oraz technicznym w formie pytań jednokrotnego wyboru. Badania zostały przeprowadzone wśród małych i średnich przedsiębiorstw branży IT zlokalizowanych w województwie śląskim, spośród których 81,5% wskazało, iż świadczą usługi w zasięgu krajowym. Pośród ankietowanych 29,6% zadeklarowało, że pracuje w obszarze e-commerce trzy lata, 22,2% cztery lata i 18,5 % pięć lat lub więcej. Kryterium doboru analizowanych podmiotów związane było z pozytywną odpowiedzią na zaproszenie do badań przesłane drogą elektroniczną. W rezultacie otrzymano zwrot 81 kwestionariuszy, z których poprawnych i kompletnych było 48. Próba badawcza nie jest reprezentatywna. Celem ankiety było zbadanie, jak rozumiana jest jakość usług przez pracowników branży IT, z jakich przydatnych narzędzi IT korzystają w swojej pracy, czy uczestniczą w szkoleniach, dzięki którym jakość ich usług wzrasta, oraz jak sami pracownicy sektora IT oceniają jakość świadczonych usług przez przedsiębiorstwo, w którym pracują.

Wyniki badań

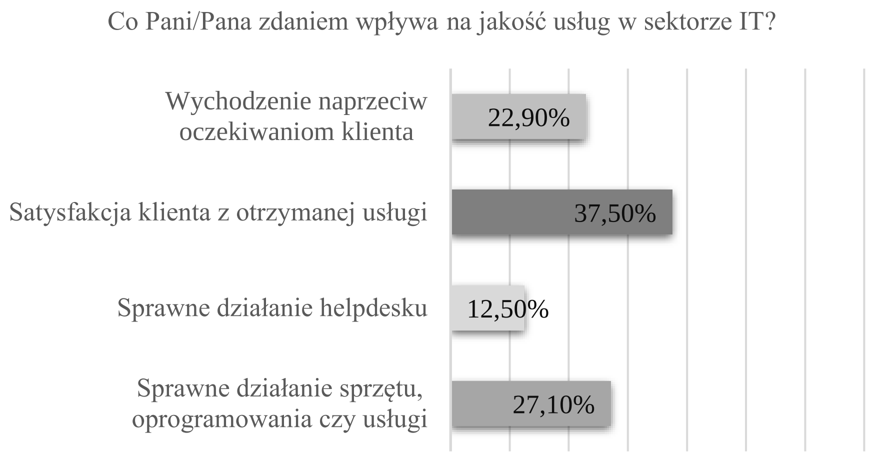
W ankiecie zostało zadanych łącznie 10 pytań o charakterze jakościowym i technicznym. W pytaniu pierwszym respondenci mieli odpowiedzieć, jak interpretują termin „jakość usług” – 39,6% ankietowanych wskazało, że jakość usług to sposób, w jaki są one świadczone, a 22,9 % badanych stwierdziło, że jakość usług to spełnienie oczekiwań klienta. Wszystkie dane zostały zaprezentowane na Rysunku 2.



Rysunek 2. Struktura odpowiedzi na pytanie: Jak rozumie Pani/Pan termin „jakość usług”?

Źródło: Opracowanie własne na podstawie badań

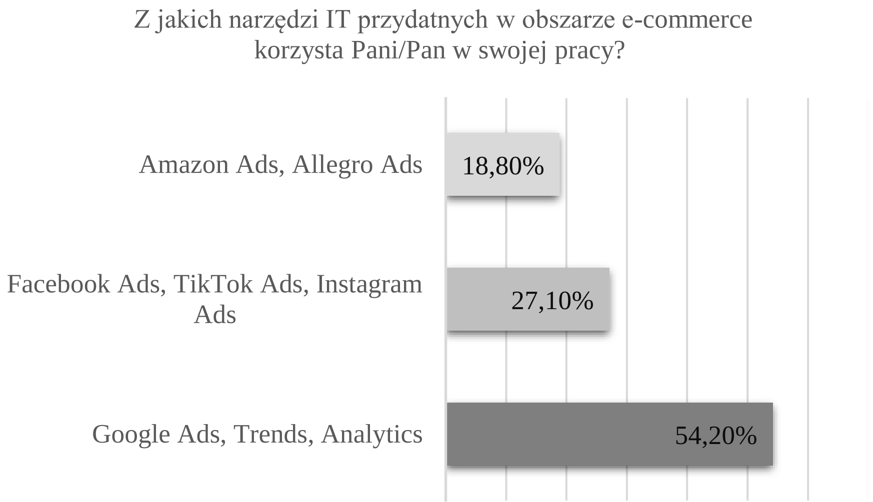
Drugie pytanie, jakie zostało skierowane do respondentów, dotyczyło tego, co ich zdaniem wpływa na jakość usług w sektorze IT. Tutaj 37,5% badanych wskazało, że na jakość usług wpływa przede wszystkim satysfakcja klienta z otrzymanej usługi. Z kolei 27,1% ankietowanych zadeklarowało, iż na jakość usług ma wpływ sprawne działanie sprzętu, oprogramowania czy usługi. Na Rysunku 3 zostały przedstawione odpowiedzi, jakie zostały udzielone przez badanych.



Rysunek 3. Struktura odpowiedzi na pytanie: Co Pani/Pana zdaniem wpływa na jakość usług w sektorze IT?

Źródło: Opracowanie własne na podstawie badań

Kolejne pytanie dotyczyło narzędzi IT, z jakich korzystają w swojej pracy pracownicy w obszarze e-commerce. Ponad połowa respondentów wskazała, że w swojej pracy głównie korzysta z narzędzi oferowanych przez Google. Z kolei 27,1% wskazało, że wykorzystuje narzędzia oferowane przez platformy społecznościowe, np. Facebook, Instagram czy TikTok. Z narzędzi oferowanych przez Amazona i Allegro korzystało 18,8% ankietowanych. Wyniki zostały zaprezentowane na Rysunku 4.



Rysunek 4. Struktura odpowiedzi na pytanie: Z jakich narzędzi IT przydatnych w obszarze e-commerce korzysta Pani/Pan w swojej pracy?

Źródło: Opracowanie własne na podstawie badań

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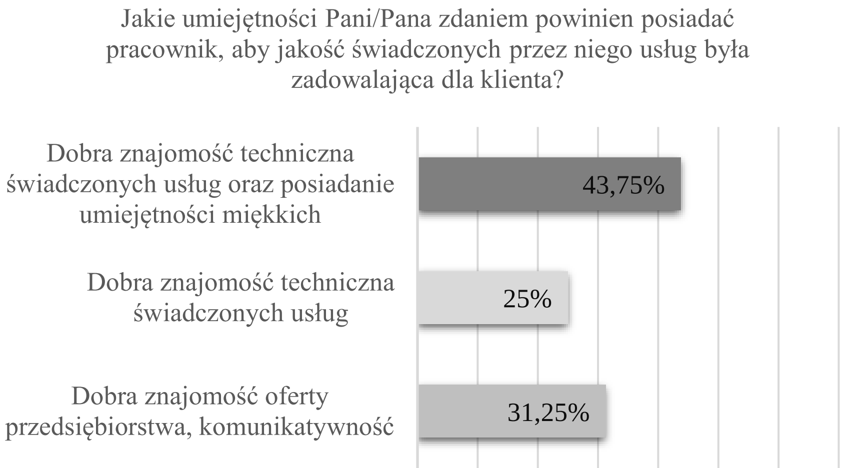
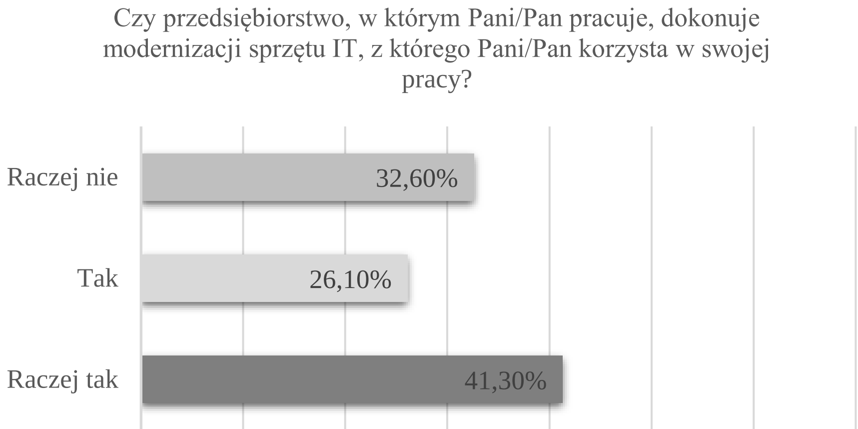
Następne pytanie dotyczyło umiejętności, jakie zdaniem respondentów powinien posiadać pracownik, aby jakość świadczonych przez niego usług była zadowalająca dla klienta. W tym przypadku 43,8% badanych zadeklarowało, że do najważniejszych umiejętności zalicza: dobrą znajomość techniczną świadczonych usług oraz umiejętności miękkie. Z kolei 31,3% badanych wskazało, że ich zdaniem pracownik powinien dobrze znać ofertę przedsiębiorstwa i być komunikatywnym. Wyniki zostały ukazane na Rysunku 5.



Rysunek 5. Struktura odpowiedzi na pytanie: Jakie umiejętności Pani/Pana zdaniem powinien posiadać pracownik, aby jakość świadczonych przez niego usług była zadowalająca dla klienta?

Źródło: Opracowanie własne na podstawie badań

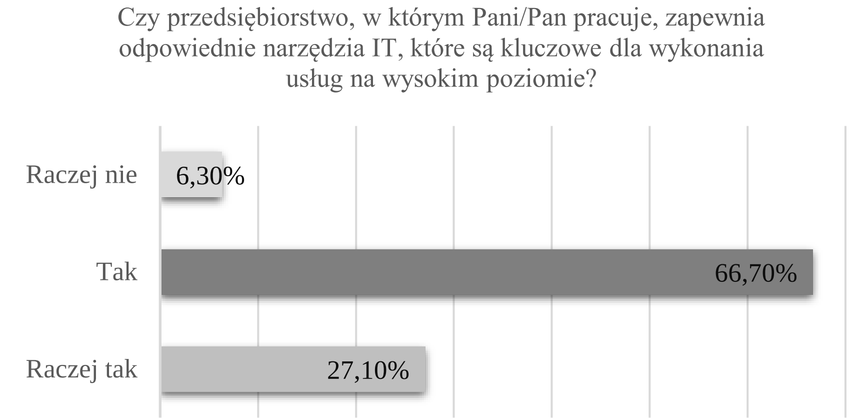


Rysunek 6. Struktura odpowiedzi na pytanie: Czy przedsiębiorstwo, w którym Pani/Pan pracuje, dokonuje modernizacji sprzętu IT, z którego Pani/Pan korzysta w swojej pracy?

Źródło: Opracowanie własne na podstawie badań

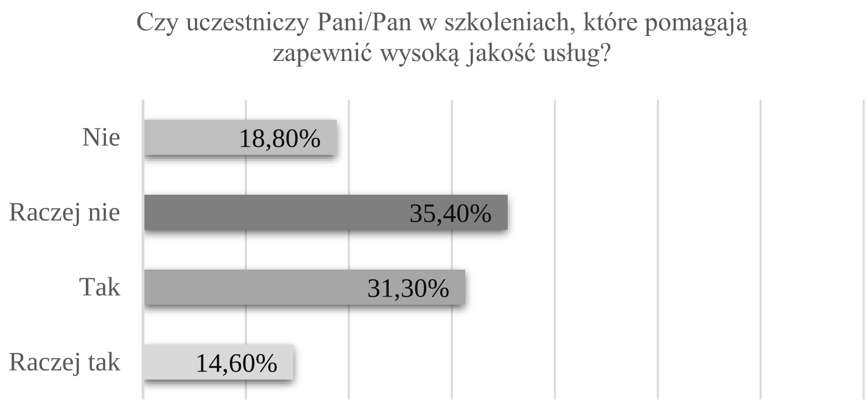
W ramach odpowiedzi na pytanie piąte ankietowani mieli wskazać, czy przedsiębiorstwo, w którym pracują, dokonuje modernizacji sprzętu IT, wykorzystywanego przez nich w pracy. Zdecydowana większość (67,4%) zaznaczyła, że takie modernizacje są lub raczej są, natomiast u reszty badanych pracodawca raczej nie dokonał modernizacji niezbędnego do pracy sprzętu. Odpowiedzi zostały przedstawione na Rysunku 6.

Następne pytanie dotyczyło zapewnienia przez pracodawcę odpowiednich narzędzi, które są kluczowe dla wykonania usług na wysokim poziomie. Aż 93,8% badanych wskazało, że raczej mają lub posiadają takie narzędzia. Rozkład odpowiedzi przedstawiono na Rysunku 7.



Rysunek 7. Struktura odpowiedzi na pytanie: Czy przedsiębiorstwo, w którym Pani/Pan pracuje, zapewnia odpowiednie narzędzia IT, które są kluczowe dla wykonania usług na wysokim poziomie?

Źródło: Opracowanie własne na podstawie badań

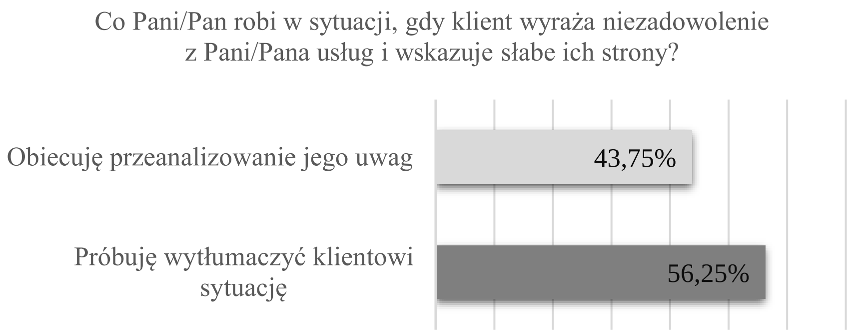


Rysunek 8. Struktura odpowiedzi na pytanie: Czy uczestniczy Pani/Pan w szkoleniach, które pomagają zapewnić wysoką jakość usług?

Źródło: Opracowanie własne na podstawie badań

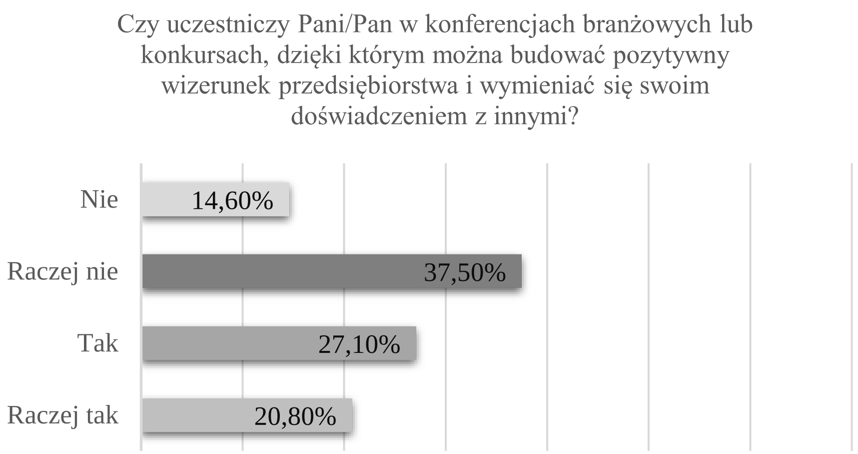
W ramach odpowiedzi na kolejne pytanie 45,9% badanych stwierdziło, że uczestniczy w szkoleniach, dzięki którym mogą zapewnić wysoką jakość świadczonych usług. Natomiast większa część badanych (54,2%) wskazała, że nie uczestniczy bądź raczej nie bierze udziału w szkoleniach tego typu. Na Rysunku 8 zaprezentowano odpowiedzi badanych.

Następne pytanie, z jakim zmierzyli się ankietowani, dotyczyło działań, jakich dokonują pracownicy w sytuacji, gdy klient wyraża niezadowolenie ze świadczonych przez nich usług i wskazuje słabe ich strony. Większość respondentów (56,3%) wskazała, iż w takim przypadku próbuje wytłumaczyć klientowi sytuację, a 43,8% ankietowanych zadeklarowało, że składają klientowi obietnice, iż jego uwagi zostaną przeanalizowane. Odpowiedzi na dane pytanie zaprezentowano na Rysunku 9.



Rysunek 9. Struktura odpowiedzi na pytanie: Co Pani/Pan robi w sytuacji, gdy klient wyraża niezadowolenie z Pani/Pana usług i wskazuje słabe ich strony?

Źródło: Opracowanie własne na podstawie badań

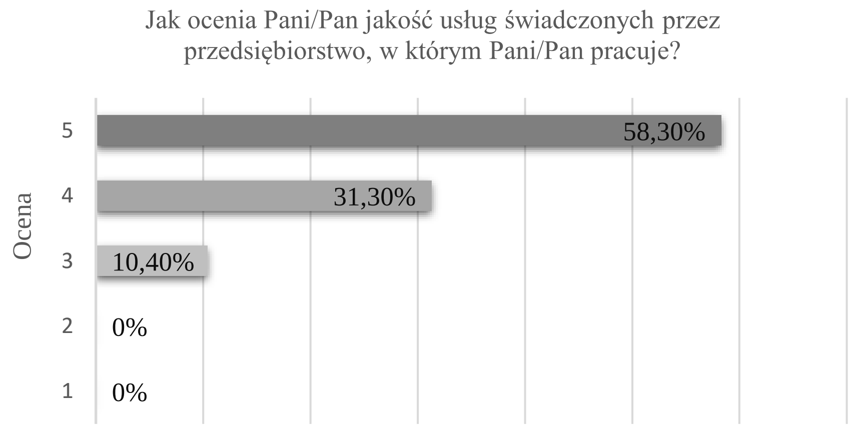


Rysunek 10. Struktura odpowiedzi na pytanie: Czy uczestniczy Pani/Pan w konferencjach branżowych lub konkursach, dzięki którym można budować pozytywny wizerunek przedsiębiorstwa i wymieniać się swoim doświadczeniem z innymi?

Źródło: Opracowanie własne na podstawie badań

W kolejnym pytaniu badani pracownicy sektora IT mieli wskazać, czy uczestniczą w konferencjach branżowych lub konkursach, dzięki którym mogą budować pozytywny wizerunek przedsiębiorstwa, w którym pracują, oraz wymieniać się swoim doświadczeniem z innymi. Prawie połowa respondentów (47,9%) uczestniczy lub raczej uczestniczy, a ponad połowa (52,1%) w ogóle lub raczej nie uczestniczy w takich wydarzeniach. Odpowiedzi zaprezentowano na Rysunku 10.

Ostatnie pytanie dotyczyło oceny przez respondentów jakości świadczonych usług przez przedsiębiorstwo, w którym pracują. Wykorzystano tu pięciostopniową skalę, gdzie 1 oznacza najniższą ocenę, a 5 – najwyższą. Większość ankietowanych (58,3%) oceniła tę jakość na poziomie najwyższym; 31,3% badanych wskazała na wartość 4, a 10,4% na wartość 3. Wyniki zaprezentowano na Rysunku 11.



Rysunek 11. Struktura odpowiedzi na pytanie: Jak ocenia Pani/Pan jakość usług świadczonych przez przedsiębiorstwo, w którym Pani/Pan pracuje?

Źródło: Opracowanie własne na podstawie badań

Analiza wyników

Wyniki uzyskane w procesie badań, wskazują na to, że jakość usługi w głównej mierze asocjuje się ze sposobem, w jaki jest świadczona, lub ze spełnieniem oczekiwań, jakie ma klient.

Zdaniem respondentów na jakość usług IT wpływa przede wszystkim satysfakcja klienta, a w mniejszym stopniu sprawne działanie sprzętu, oprogramowania czy wychodzenie naprzeciw oczekiwaniom klienta.

Jeśli chodzi o przydatne narzędzia, z jakich korzystają pracownicy w swojej pracy w obszarze e-commerce, respondenci wskazali głównie na instrumenty oferowane przez przedsiębiorstwo Google. Pozostałe stosowane narzędzia to rozwiązania z grupy Meta czy TikTok. Ostatnią pozycję zajęły instrumenty od firmy Amazon oraz Allegro. Takie rezultaty mogą wynikać ze specyfiki przedsiębiorstw, w jakich respondenci pracują, czy rynku, na jaki nakierowane są działania mające pomóc w pozyskaniu nowych klientów. Ze względu na zasięgi i możliwość dotarcia do dużej grupy potencjalnych klientów przewagę mają tutaj narzędzia Google.

W odniesieniu do umiejętności, jakie zdaniem badanych powinien posiadać pracownik, aby jakość świadczonych przez niego usług była zadowalająca dla klienta, ankietowani wskazali, że do takich umiejętności głównie zaliczają dobrą znajomość techniczną świadczonej usługi oraz posiadanie umiejętności miękkich. Takie wyniki podkreślają, jak ważnym obecnie elementem wpływającym na jakość usług jest posiadanie umiejętności miękkich przez pracowników. Odpowiednie podejście do klienta poprzez umiejętne reagowanie na jego oczekiwania, jak również zrozumiałe przekazywanie mu informacji sprawia, iż będzie on bardziej zadowolony z otrzymanej usługi. Dobra znajomość oferty przedsiębiorstwa przez pracownika jest równie ważna jak umiejętność komunikacji z klientem czy sposób, w jaki zachowują się pracownicy względem klienta. To od dobrej komunikacji może zależeć, czy klient lub potencjalny konsument skorzysta z usług danego przedsiębiorstwa, czy wybierze konkurencję.

W dalszej części badań ankietowani mieli wskazać, czy pracodawca dokonuje modernizacji sprzętu IT, z którego korzystają w swojej pracy. Większość ankietowanych wskazała, iż takie modernizacje mają bądź raczej mają miejsce. To ukazuje, że większość przedsiębiorstw zakłada w swoim budżecie środki na modernizację, gdyż widzi w dalszej perspektywie zwrot poniesionych kosztów poprzez wzrost przychodów. Wydaje się być powszechną wiedzą, że przedsiębiorstwo, chcąc sprawnie działać, musi modernizować swój sprzęt, aby zapewnić pracownikom płynną pracę. Z otrzymanych odpowiedzi wynika jednak, że nie wszędzie ma to miejsce. Taki stan rzeczy może wiązać się między innymi z wysokością posiadanych przez przedsiębiorstwa środków finansowych przeznaczonych na ten cel, z jego wielkością lub charakterem jego działalności.

W pytaniu dotyczącym zapewnienia przez pracodawcę pracownikom narzędzi IT, które są niezbędne do wykonania usług na wysokim poziomie, przeważająca większość badanych wskazała, iż mają bądź raczej posiadają takie narzędzia. Takie rezultaty pokazują, że pracodawcy zdają sobie sprawę z faktu, jak ważne w sektorze IT jest zapewnianie odpowiednich narzędzi, gdyż od tego zależy sprawne funkcjonowanie ich przedsiębiorstw na rynku. Dzięki odpowiednim narzędziom przedsiębiorstwa będą w stanie zaoferować taki poziom usługi, który spełni oczekiwania klienta, i tym samym przedsiębiorstwo utrzyma lub zwiększy swoją renomę. Dane czynniki z kolei przekładają się na liczbę potencjalnych klientów i na zysk przedsiębiorstwa.

Kolejne pytanie, z jakim zmierzyli się ankietowani, wiązało się z uczestnictwem w szkoleniach, które pomagałyby pracownikom świadczyć usługi na wysokim poziomie. Większość badanych wskazała, że nie uczestniczy lub raczej nie uczestniczy w takich zajęciach. Dane rezultaty ukazują, że większa część przedsiębiorstw nie widzi potrzeby inwestowania w szkolenia mające na celu poprawę jakości oferowanych usług. To może świadczyć o niskiej świadomości potrzeby takich szkoleń wśród przedsiębiorców. Innym czynnikiem, jaki ma wpływ na takie wyniki, jest opinia, iż szkolenia generują dodatkowe koszty, co jest inwestycją, która może się w ogóle nie zwrócić i nie wpłynąć na wysokość przychodu. Kolejnym problemem jest brak odpowiedniej ilości czasu na przeprowadzenie szkoleń. Jeśli szkolenia będą przeprowadzane w godzinach pracy, może to wpłynąć na wydajność pracy. Z kolei przeprowadzanie szkoleń poza czasem pracy może spotkać się z negatywną opinią pracowników, gdyż w takim przypadku będą oni musieli poświecić swój prywatny czas, za który zazwyczaj nikt im nie zapłaci. W związku z powyższym każde przedsiębiorstwo musi indywidulanie podejść do kwestii szkoleń i rozważyć, co będzie dla niego bardziej opłacalne.

Rozkład odpowiedzi na pytanie odnoszące się do podejmowanych przez pracowników działań w sytuacji, gdy klient wyraża niezadowolenie ze świadczonych przez nich usług, wskazuje, że większość ankietowanych podejmuje wtedy próbę wytłumaczenia klientowi okoliczności wpływających na taką postać rzeczy. Mniejszy odsetek respondentów w takiej sytuacji składa deklaracje klientowi, iż jego uwagi zostaną przeanalizowane. Takie rezultaty mogą świadczyć o tym, że przedsiębiorstwa są skłonne do przyznawania się do pewnych błędów, a kiedy zdarza się taka sytuacja, to nie pozostawią klienta samego z problemem, ale podejmują działania w zakresie jego wsparcia. To podejście sprawia, iż klient nie czuje się oszukany i pozostawiony samemu sobie z problemem. Może to pozytywnie wpłynąć na postrzeganie przez niego przedsiębiorstwa i spowodować, iż mimo pojawienia się problemów będzie on polecał usługi danego przedsiębiorstwa z uwagi na poziom i jakość otrzymanej pomocy.

Na pytanie, czy pracownicy uczestniczą w konferencjach branżowych lub konkursach, dzięki którym można budować pozytywny wizerunek przedsiębiorstwa i wymienić się swoim doświadczeniem z innymi, mniej niż połowa badanych wskazała, że uczestniczy lub raczej uczestniczy w takich wydarzeniach. Takie dane świadczą o tym, że pracodawcy nieczęsto są skłonni do uczestnictwa w tego typu wydarzeniach, skupiając się głównie na wykonywaniu zleceń klientów. Ponadto istotny tutaj może być też brak chęci ze strony pracowników w uczestnictwie w konferencjach czy konkursach z powodu nieodpowiedniego wynagradzania za podejmowanie takich działań. Dodatkowo na nieprzychylność do uczestniczenia w takich wydarzeniach może wpływać niechęć do nakładania na pracowników dodatkowych obowiązków, co przełoży się na wydłużenie ich czasu pracy.

W ostatnim pytaniu pracownicy mieli ocenić jakość usług świadczonych przez przedsiębiorstwo, w którym pracują. Zdecydowana większość ankietowanych bardzo wysoko oceniła tę jakość. Warto podkreślić, że w pięciostopniowej skali oceny (gdzie 1 oznaczało najniższą ocenę, a 5 – najwyższą) nie było żadnego wskazania poniżej wartości 3. Wyniki jednoznacznie pokazują, że większość pracowników wysoko ocenia jakość świadczonych usług przez przedsiębiorstwa, w których pracują, jednak aby ten wynik był wyższy, przedsiębiorstwa muszą stale doskonalić obszary, w których występują pewne problemy lub niedociągnięcia.

Podsumowanie

Rozwój sieci Internet oraz coraz powszechniejszy do niej dostęp sprawiły, że każdy człowiek uzyskał szeroką możliwość dotarcia do informacji i usług z całego świata. W dzisiejszych czasach konsumenci mogą zakupić towary, nie wychodząc z domu, i otrzymać je również z dostawą do domu, co sprawia, że stacjonarne sklepy mają dość poważną konkurencję w walce o klienta. Branża e-commerce stale się rozwija, oferując poprzez rekomendacje towary, dobra czy usługi, które nie tylko zainteresują danego klienta, ale będą również dostosowane do jego indywidulanych potrzeb. E-commerce nie może funkcjonować bez odpowiedniej infrastruktury informatycznej, co sprawia ze oba obszary są ze sobą bardzo powiązane. Technologiczni giganci, tacy jak Google czy grupa Meta, tworzą narzędzia, dzięki którym przedsiębiorcy mogą dotrzeć ze swoimi usługami bądź towarami do dużej rzeszy użytkowników, którzy mogą się stać ich potencjalnymi klientami. Dlatego bardzo istotne jest, aby jakość narzędzi, z jakich korzystają przedsiębiorcy do promowania się w sieci Internet, czy platform, z których korzystają w ramach realizacji świadczonych przez siebie usług, była odpowiednia. Wyniki przeprowadzonych badań pokazują, że na jakość usług w dużej mierze mają wpływ między innymi takie elementy, jak:

– rozumienie, czym jest jakość usługi;
– wiedza, świadomość i pojęcie o tym, co wpływa na jakość usług;
– posiadanie przez pracowników odpowiednich umiejętności;
– narzędzia i sprzęt, z jakich korzystają pracownicy,

Reasumując – temat jakości usług jest dość obszernym zagadnieniem. Jego definiowanie trwa od wielu lat, a wraz z rozwojem technologicznym jego pojmowanie ulega pewnym przeobrażeniom. Badania nad poruszaną tematyką będą w dalszym ciągu prowadzone, gdyż powstają nowe rozwiązania (oparte chociażby na sztucznej inteligencji), dzięki którym pojęcie jakości usług będzie musiało być stosownie uregulowane, by zachować odpowiedni standard ich świadczenia.

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QUALITY OF IT SERVICES IN THE E-COMMERCE INDUSTRY

Abstract: The ever-accelerating technological development blurs the border between the real and virtual worlds. People are using the Internet more and more, browsing the content of social networking sites (e.g. Facebook) or platforms offering video content (e.g. YouTube) and looking for information on topics of interest to the user on blogs or Internet forums. To access all of this content, one must be able to connect to the Internet. Widespread access to the Internet, lower cost of its use, and faster connections meant that businesses began to move partially or completely to the virtual world, where there are no physical boundaries in access to new customers and new markets. The article deals with the subject of the quality of services in the e-commerce industry, which deals with the trade of goods and services on the Internet. The article consists of a theoretical part, in which, based on a literature query, issues related to the origin of quality, interpretation of service quality, and a description of selected methods of service quality research are discussed. The text describes the development and quality of digital services on the example of leading technology companies. The second part of the study presents the results of research conducted among employees of the IT industry, which concerned the understanding of the quality of services, factors influencing it, reactions to customer dissatisfaction and the assessment of the quality of services provided by enterprises employing respondents.

Keywords: IT industry, e-commerce, quality of services, digital services

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A COMPARATIVE ANALYSIS OF VARIOUS FINANCING METHODS AVAILABLE TO SUPPORT INNOVATIVE ACTIVITIES OF SMEs IN POLAND

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Abstract: Innovation plays a critical role in ensuring sustainable economic development. It is a fundamental element in the success of companies, corporations, and industries, but the process of innovation is an expensive endeavor that requires significant financial resources. The objective is to evaluate the strengths and weaknesses of different financing tools, including government grants, bank loans, self-financing, crowd-funding, seed financing, and venture capital by analyzing case studies and results of research surveys. The first part of this research will explore the concept, types, and classification of innovation. The empirical part is based on a discussion of survey results obtained from 59 SMEs, including the factors that influence SMEs' decisions to seek financing for innovation. The research method used in this study is qualitative research in terms of applied and descriptive approaches; various resources were used including library materials, research papers, survey data, and questionnaires with entrepreneurs and business owners. The objective was to analyze obstacles and opportunities as well as the most suitable financing method required by small and medium-sized enterprises (SMEs) to support their innovation. The results show that the choice of the financing method depends on several factors, including the type and stage of innovation, the scope of the company, the particular industry, and the risk involved for both the innovator and the investor.

Keywords: financing methods, innovation support, Poland, seed financing, SMEs

JEL Classification: O31, M13, G23

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Introduction

The global economy is heavily dependent on small and medium-sized enterprises (SMEs), which hold an important position. SMEs drive growth and innovation across various sectors while also generating employment opportunities for individuals. In a literature review, we will discuss frequent economic practices and highlight the relatively low level of innovation in Poland, particularly among small and medium-sized enterprises (SMEs). Therefore, it becomes important to examine the connection between both internal and, more importantly, external sources of financing and the extent of innovative activity within the SME sector in Poland.

Innovation is a broad term that refers to improving existing services or inventing something new. It is the process of implementation of new products or completely enhanced products in a market. A product is either goods or services, whether related to the production or delivery of service with a better marketing approach or organizational method (OECD, 2005). There are various definitions and concepts of 'innovation' in the context of economic and business theory, as well as in practical applications. Due to its historical importance and significance, different criteria are often used to categorize innovation. In the mid of the previous century, Austrian economist Joseph Schumpeter identified five distinct types of innovation: formulating and producing a new product, introducing a new production method, new ways of selling goods and services, developing a new form of organization, and introducing new sources of raw materials (Schumpeter, 1934). These concepts serve as the foundation for the development of a conceptual innovation process framework.

The concept of innovation presented here is closely associated with the classification of innovation by the Organization for Economic Co-operation and Development (OECD), which divides innovation into four categories: product innovation, process innovation, marketing innovation, and organizational innovation (OECD, 2005). According to Schumpeter, innovation is a historical and irreversible change in the way of doing things, often referred to as "creative destruction" (Schumpeter, 1934). Innovation is a process that begins with an idea or imagination and progresses through various stages of development before concluding with implementation. Innovations are referred to as new creations with economic impact, adopted and undertaken by businesses, including both product and process advancements.

Product innovations involve the development of new or better products that include new material goods, as well as new intangible services such as travel, freight forwarding, insurance, consulting, brokerage, education, and health care (Maier, 2018). This strategy is very common in business and, according to our requirements, is used to develop either a new product or improve the performance of an existing one by introducing necessary modifications and selling new or improved products, including both tangible goods and intangible services (Meeus & Edquist, 2006).

Process innovations are new methods of producing goods and services that include technological and organizational changes. In this classification, material goods and technological product innovations are considered tangible, while the remaining categories are intangible (Meeus & Edquist, 2006). This field of innovation is working to improve existing methods and their effectiveness by improving production, processing, delivery, and customer satisfaction (Maier, 2018).

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Technological innovation is a process that involves technology, organizations, business, and finance. It leads to the development of new products and production techniques, which are used to create semi-finished products. In the 21st century, the Internet is the best example of technological innovation (Xiao & Su, 2022) because it can also provide the basis for many other innovations. Nowadays, big tech giants like Google and Amazon are innovations in their own right and enable other innovations in different fields.

The most important field of innovation is business model innovation because it creates our business strategy according to market requirements. A business model is a plan that describes how a company or organization creates value for its customers. It typically includes information about the target market, their needs, and how the company's products or services will meet those needs. The current economic challenges they face require them to seek innovation not only in the areas of products and processes but also in the production, process, and organizational areas of their activities. As a result, companies may need to consider introducing changes to their business model to achieve their goals (Grabowska, 2015). The scope of innovation in a business model should be based on the level of understanding of market needs and the ability of an enterprise to successfully implement innovation. Therefore, managers should carefully consider the type and scale of innovative solutions when implementing innovation in a business model (Martin, 2016). Innovation plays a critical role in the introduction of new products or in making changes to existing product lines or processes, resulting in increased market share, sales, and customer satisfaction. The success of innovation heavily depends on its financial support, and developed nations possess numerous methods to support and promote innovative activities (Wegner, 2022). The projects can be financed by companies through internal or external methods, which involve utilizing cash flow or acquiring loans. Usually, the majority of innovative projects receive primary funding from internal sources (Transition Report, 2014). It is essential to have sufficient internal financial resources to carry out innovative activities, not only to cover project expenses but also to facilitate the ability to access subsidies or loans for additional funding that is required during the development phase (World Bank Summary Report, 2020). External financing methods for innovation involve seeking funds from sources outside the company. These may include venture capital investments, bank loans, government grants, seed financing, and crowdfunding platforms. This issue is discussed in more detail in the literature review for this article.

This article will be divided into several sections: introduction, literature review, research methodology, results and discussions, and conclusions. The initial part presents the significance of innovative activities in SMEs and explains the level of dependence on the availability of financing sources. The second section is related to the literature review on the importance and the role of financing in fostering innovation, including the impact of funding on innovation outcomes, as well as the importance of financial support in addressing the obstacles associated with innovation and its funding sources. The methodology of our research discussed in the third section of this article includes empirical research based on a questionnaire-based survey conducted among SMEs to examine their experiences with financing innovation.

It illustrates the essential components of innovation management and highlights the role that various financing tools in supporting innovation within the company. In the fourth part, the results and discussion explain the business model, analyze the different types of financing and financing stages, and present the conclusions of a survey conducted among small and medium-sized enterprises (SMEs) on their experiences in financing innovations. The survey aims to provide insights into the challenges faced by SMEs when financing innovation, as well as their perceptions of different financing tools. This section will examine the survey results, including the factors that influence SMEs' decisions to seek financing for innovation, and the most commonly used financing tools among SMEs.

Literature review

Innovation is not only about coming up with a new idea but also ensuring that the company can implement it. Financial resources play a crucial role in this process. It was found in a study that lack of financial resources is one of the major barriers to innovation (Cobban et al., 2019). The uncertainty surrounding the return on investment and the level of investment required, particularly in the early stages of innovation, makes it challenging for management to invest in new ideas (Rijnbach, 2012). On the other hand, a company may have sufficient funding, but it all comes from internal sources. It is important to consider funding for innovation from a broader perspective and to explore all available options. Financing tools are important in innovation because they provide the means to secure the necessary funding to bring new ideas to life (Rijnbach, 2012).

The analysis of innovation activities in Polish companies reveals that their level of innovation is low compared to leading countries. Between 2019 and 2021, only 26.3% of industrial and 22.2% of service enterprises engaged in innovative activities (Wegner, 2022). Greece had the highest percentage of innovative enterprises at 73%, followed by Belgium at 71%, Germany and Finland at 69%, and Cyprus at 66%. On the other hand, Romania had the lowest level of innovation activity at 11%, Latvia at 32%, Hungary, and Spain at 33%. This lack of innovation can be attributed to a lack of perception of domestic technological innovations by businesses, resulting in an ineffective use of their innovation potential (Community Innovation Survey, 2022). When looking at the funding sources for innovation spending in both industrial and service enterprises, the majority came from own funds (76.3% and 87.9%, respectively). A smaller proportion came from abroad (9.7% and 5.6%), credit and loans from financial institutions (6.0% and 2.1%), and domestic funding from institutions with public funds 3.8% and 2.5% (Wegner, 2022).

The innovation ecosystem in Poland is one of the least developed in the European Union. In recent years, it has ranked near the bottom of the European Innovation Ranking, ahead of only Romania, Bulgaria, and Croatia, with the lack of good ideas and high costs related to innovation being the main reasons that prevent companies from engaging in R&D projects (Community Innovation Survey, 2022). Developed nations have many options to support and advance innovation, as new scientific advancements and technologies play a very important role in national security.

The main source of funding for innovation was internal funds, regardless of the scope and type of activity carried out. It is essential to have sufficient internal financial resources to undertake innovative activities, not only to cover project expenses but also to access subsidies or loans as additional funding is needed during the development phase (Kokot-Stępień, 2022). Internal financing is an immediate option that provides support for innovation to a company or organization that can access from within their own operations and resources, without relying on external sources such as loans or investments. Some common internal financing options include:

1. Retained earnings: Profits that are not distributed as dividends but instead reinvested back into the company.
2. Debt financing: Borrowing funds from within the company, such as through inter-departmental loans or bonds issued to employees.
3. Sales of non-core assets: Divestment of non-essential assets, such as property or equipment, to free up capital for innovation.
4. Cost savings: Redirecting resources from non-essential areas to fund innovation projects.

Internal financing provides companies with a stable and controlled source of innovation financing that can help in the utilization of funds. Innovation activities are highly risky, with some studies finding that 90% fail to succeed (Marmer et al., 2011). To mitigate this risk, innovators must seek financing from sources and institutions that are willing to accept it. The initial funding for innovation often comes from the owner's capital. However, as the project and team grow, this may become insufficient for continued development. Hence, the progress of a startup depends on securing external sources of financing beyond the founder's equity. These sources can include but are not limited to:

1. Venture capital: It is an external source of funding that is often invested in companies that are high-growth startups and innovative and have the potential for significant returns with very little risk.
2. Business angels: They are wealthy individuals who provide equity financing. They are usually successful entrepreneurs who invest their savings. They usually prefer high-potential, high-risk investments. Like venture capital, business angel investments come with added benefits for the company, such as strategy support, business connections, and experience in running and growing a business.
3. Crowdfunding: It is a popular way to raise funds by appealing to a large group of people through an Internet portal. Projects, whether business or not, are funded through equity or debt-based financing, reward-based financing, or donation-based financing (Mora-Cruz & Palos-Sanchez, 2023).
4. Seed financing: Seed financing is typically provided at the earliest stage of a new venture or project, even before it begins to generate revenue. It is a prevalent method for early-stage development funding among startups that have not yet received venture capital or angel investment. Seed financing commonly involves multiple stages of funding for a project or idea, with each stage having unique characteristics and goals (CFI).

Table 1. Features of the chosen methods for start-ups to raise capital

Category	Founder's invested capital	PE / VC Funds – Business Angels	Crowd funding	Internal Financing
Attainable amount of capital	Constrained by the owners' financial capacity	Depends on the company's financial status and outlook and market conditions	Typically, smaller than with shares sold to financial investors, usually limited	Constrained by the company's cash flow
Ease in obtaining capital	Significant, given that the owners have s ufficient capital	The process for choosing entities to invest funds is rigorous	The competition to secure these funds is intense, success depends on the project's ability to generate interest among the community	Significant
Control over the company	Complete	Financial investors typically aim to exert significant influence on the company's operations	Almost all types of Crowd-funding	Complete
Costs	Very low	Very low	Low	No costs
Additional benefits	No	Assistance in the management of the company, active participation in the strategy, and aid in securing additional funding	Significant marketing impact and promotion, an efficient way to reach a large audience with information about the company and its offerings	No

Source: Author's own study based on research (Wilson & Silva, 2013)

Innovation funding sources will be used to support the development and implementation of an innovative project or idea. The conclusion of financing sources is an important step in the innovation process, as it determines the level of resources available to support the project and the terms and conditions under which the funds will be provided. Ultimately, the choice of financing sources will have a significant impact on the success of the innovation project and must be made with careful consideration of the risks and benefits involved.

Methodology

The primary objective of the article is to analyze the challenges and opportunities faced by small and medium enterprises (SMEs) in terms of innovation support, while also identifying the most suitable financing methods required by them. By conducting this study, we will be able to find answers to the following research questions.

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- What is the understanding of the financing options among innovators and how do they assess and use the financing tools?
- What are the key features and benefits associated with the different financing options and what factors are discussed in relation to the choice of financing tool?
- How does the risk associated with the innovation factor influence the selection of a financing tool?

We conducted a survey among small and medium Polish innovative companies that focus on creating innovative solutions. We examined the challenges they faced and analyzed the various financing tools employed by the companies to support their innovative process. This empirical study is based on a survey conducted among SMEs to explore enterprises' experiences of financing innovation. The objective of the survey is to gain valuable insight into the difficulties faced by SMEs when seeking innovation financing, as well as their perspectives on various financing tools. This section helps to analyze the survey findings and includes an exploration of the factors that influence the decision-making process of SMEs when it comes to financing innovation, as well as the financing tools that are the most commonly used among SMEs. Based on the collected data, the analysis includes the assessment of the level, structure, and dynamics of both SMEs' expenditure on innovation and the sources of financing for their innovative activities.

However, like any study, this one also has its limitations. It presents possible ways to overcome the potential limitations of a comparative study of different financing tools that support innovation. One of the primary limitations is the limited availability of data. Some financing tools, such as venture capital, bank loans/credits, and government assistance, have been studied extensively, while others, such as crowdfunding, seed financing, and angel investing have not been studied as thoroughly. It makes it difficult to compare the effectiveness of different financing tools accurately. To overcome this problem, multiple sources were used, such as primary data, e.g., surveys and interviews, to collect information directly from the stakeholders involved in innovation financing. Secondary data, such as financial reports, can also provide useful information for comparative analysis.

Innovation is a long-term process and its effects may not be immediately apparent. Long-term data is required to accurately evaluate the effectiveness of different financing tools. The study analyzed shorter-term data to identify trends and patterns, focused on recent developments and used this information to extrapolate future trends. In addition, interviews and surveys with experts in the field were conducted to gain their insights and perspectives on financing innovation.

Results and discussion

The process of implementing innovation is a very important element for the success of any company, as it enables the organization to remain competitive within its industry, fulfill the ever-changing needs of its clients, and enhance efficiency and productivity. In addition, innovation helps a company explore new markets, products, and revenue streams. There are various approaches for Polish companies to implement innovation, such as investing in research and development (R&D) to introduce new products or enhance existing ones, share their knowledge and expertise with startups, or create an innovative work environment that encourages employees to come up with and share new concepts.

The research findings indicate that the success of implementing innovation in SMEs is significantly on seed financing during their initial stages, followed by adaptable financing methods depending on the circumstances. However, it was observed that funding options such as crowdfunding, business angels, and seed financing, which are more appropriate for early-stage startups and innovation-focused SMEs, are utilized by less than 10% of the SMEs. By studying successful SMEs, we identified best practices and strategies that can be applied to other businesses. This can help to promote innovation and growth across the sector. This case study can also help identify the challenges and obstacles that SMEs face when it comes to financing innovation. By understanding these challenges, policy makers and investors can work to create more effective solutions that address the needs of SMEs.

Businesses that employ fewer than 250 people and have an annual turnover of no more than EUR 50 million or an annual balance sheet total not exceeding EUR 43 million are categorized as micro, small, and medium companies (European Commission, 2003). SMEs are of significant importance in any economy as they contribute to the production of goods, create employment opportunities, respond effectively to market fluctuations, and act as a catalyst for innovation in the creative, technical, and technological domains. In addition, they also serve as a source of social and economic development within a region. Therefore, supporting SMEs is an important factor in driving economic growth in any economy.

The purpose of the survey was to gather the perspectives of Polish SMEs and help to enhance their competitiveness. It was carried out in April 2023 and received responses from 59 SMEs located in 13 different voivodeships (provinces) in Poland. The report highlights that the majority of companies that participated in the survey are micro-businesses, representing 40.7% of the total. Small companies account for the second highest number, representing 35.6% of the total. Lastly, medium-sized companies make up the remaining 20.3% of the total (Figure 1).

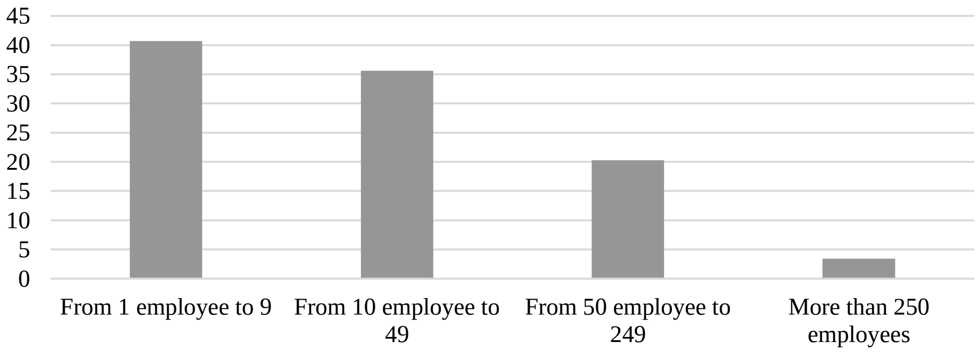

Figure 1. Number of companies classified by the total number of employees (in %)

Source: An online survey carried out by the author using Google Forms

The majority of the SMEs belonged to the restaurant/food/cafe industry, representing 27.1% of the total. The report also highlights that 22% represented the spare parts manufacturing sector, including casting foundries and small industries. In addition, the report highlights that 22% of the respondents were in the information technology sector.

This suggests that there is a strong focus on innovation among SMEs in these sectors. Furthermore, the report shows that 13.6% represented consulting companies that provide unique services to their clients. This highlights the importance of service-based industries in the region and the growing demand for consultancy-based services. Lastly, the report indicates that a minor proportion of companies, less than 15%, did not disclose their type of business. This information is relevant because it may be indicative of the nature of the SMEs in the region and their level of transparency (Figure 2).

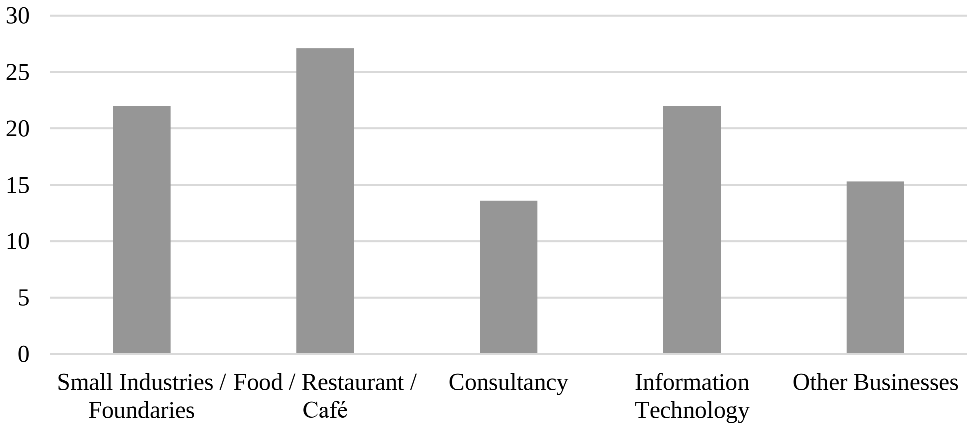

Figure 2. Number of small and medium enterprises according to their business sector (in %)

Source: An online survey carried out by the author using Google Forms

The results of the survey indicate that 42.4% of the companies surveyed used their own funds, including the use of personal savings and other internal sources of funding. The second-highest source of financing for SMEs is bank loans and credits, which constitutes over 15.3% of the total of SMEs. This indicates that some SMEs rely on external funding sources, such as bank loans, to support their business operations. The report highlights that government assistance programs provided funding at 20.3%, which is the third highest source of financing. It indicated that these SMEs may not have proper access to funding sources, which could affect their ability to innovate and grow.

The results of the survey also show that funding sources such as crowdfunding, business angels, and seed financing, which are suitable for early-stage startups and innovation-based SMEs, make up less than 10% of the total SMEs surveyed. This indicates that there is limited availability of funding sources for innovative SMEs.

The reliance on self-financing and bank loans suggests that external funding sources may not be easily accessible for all SMEs, which could limit their ability to innovate and grow. This information can be used to create policies and programs to support SMEs and promote innovation in the region (Figure 3).

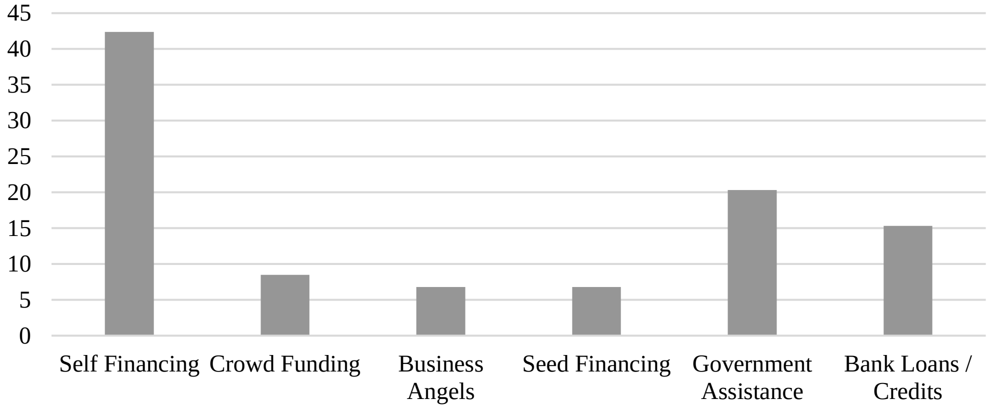

Figure 3. Financing method used in the past six months to support innovation (in %)

Source: An online survey carried out by the author using Google Forms

The most significant obstacle identified by the SMEs is the lack of financing sources, with 32.2% of the respondents citing this as a barrier. This suggests that many small businesses are struggling to secure the funding they need to invest in research and development or other innovative activities. Without adequate financing, these businesses may struggle to remain competitive in the long term. Another significant obstacle identified by SMEs is the high cost of innovation, with 23.72% of the total. This indicates that many SMEs may be deterred from pursuing innovative activities because of the high costs involved. This could include the costs of research and development, hiring skilled employees, or investing in new technology or equipment.

The survey also found that 18.6%. of the respondents consider administrative and legal barriers a significant obstacle for SMEs. The lines suggest that seed financing, crowdfunding, and business angels are good financing tools for innovation and SMEs because they provide initial investment without any conditions, allowing these businesses to pursue innovation. Finally, the survey identified that the lack of skilled employees and technology in some companies is also a barrier to innovation. This could involve investing in employee training programs or hiring skilled employees from outside the organization. In conclusion, the various obstacles that SMEs face in pursuing innovative activities in their development include financing, high costs of innovation, administrative and legal barriers, and a lack of skilled employees and technology. It is necessary to improve and select good financing tools, as well as invest in employee training and skill development (Figure 4).

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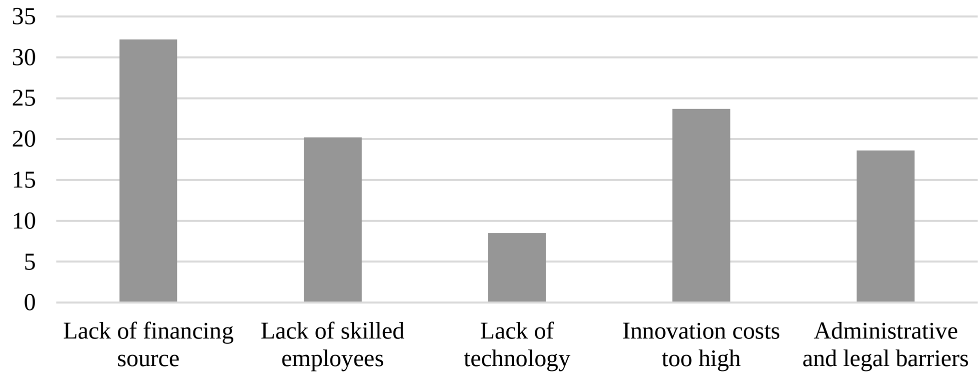

Figure 4. Factors that impede innovation activity in the past three years (in %)

Source: An online survey carried out by the author using Google Forms

Our survey results indicate that seed financing, crowdfunding, and business angels are effective financing options for small and medium-sized enterprises (SMEs), particularly for innovative startups. Furthermore, government-sponsored financing programs can also be advantageous in encouraging innovation. The appropriate allocation of funds is also a critical factor in promoting innovation, with investments in research and development and employee training being particularly beneficial in enhancing overall productivity.

In recent years, the growth of small and medium enterprises (SMEs) has been attributed to their innovative approaches and efforts to secure optimal financing. However, SMEs may find innovation costly, as it involves substantial investments in research and development to introduce new products and services. This can be especially challenging for SMEs with limited financial resources. To address this, SMEs require the most suitable financing method, which depends on various factors such as their growth stage, risk level, and the type of assets they possess.

Ultimately, the study demonstrates that the financing method has a direct impact on the innovation ecosystem, particularly in seed financing, crowdfunding, and business angels, which have a relatively small share in the overall financing pool. Early-stage funding is crucial to provide capital to start-ups and early-stage companies to cover the costs of research and development, prototyping, and other initial expenses. For SMEs exploring innovation, seed financing can be a valuable resource as it can provide the necessary funding to support research and development and implement new ideas.

Conclusions

The objective of the paper was to analyze and compare various financial tools available to support innovation in different contexts. The aim was to provide a comprehensive understanding of the different financing options available to innovators.

It discussed different factors that influence the choice of financing tools, such as the stage of innovation, the industry, the size of the investment, and the risk associated with innovation. There is no single financing method that is best for all innovations and start-ups in SMEs, as the choice of financing method depends on various factors, such as the nature and stage of innovation, the size and scope of the business, the industry, and the risk associated with the innovation and investor. However, the study concluded that each financing method has some limitations. Below, we present a brief overview of some of the financing methods discussed in our paper.

- Self-financing involves using personal savings, credit cards, or other personal assets to fund a startup. It can be a good option for entrepreneurs who have the resources to fund their venture and do not want to give up equity or take on debt. However, self-financing can be risky, as the entrepreneur may lose their personal assets if the venture fails.
- Angel investment can be a good option for innovation with a strong potential for growth and a clear business plan. However, it can be challenging to find and attract angel investors, and investors may expect a high return on their investment.
- Crowd-funding involves raising funds from a large number of individuals, usually through online platforms. It can be an effective way to validate a business idea and generate interest in the product or service. However, it can be difficult to stand out among many projects that seek funding on crowdfunding platforms.
- Seed financing typically refers to the first round of funding that a startup receives from investors. It can be a good option for startups that have a clear business plan and a strong team but need capital to develop their product or service. However, seed financing can be difficult to secure as investors may be hesitant to invest in untested ventures.
- Bank loans involve borrowing money from a bank or financial institution and paying it back with interest over time. Bank loans can be a good option for established businesses with a strong credit history and steady cash flow. However, bank loans can be difficult to secure for startups and may require collateral or a personal guarantee.
- Government assistance can come in the form of grants, loans, or tax incentives designed to support innovation and entrepreneurship. Government assistance can be a good option for startups that meet certain eligibility requirements and can help reduce the financial burden of starting a business. However, government assistance can be limited and competitive and the application process can be time-consuming.

Overall, it is clear that seed financing and angel investment have a positive impact on innovation in Poland, but more needs to be done to ensure that startups have access to these financing tools. By exploring other financing tools and addressing any barriers to access, it is possible to build a stronger startup ecosystem that can help drive innovation and economic growth in Poland. By understanding these challenges, policy makers and investors can work to create more effective solutions that address the needs of SMEs.

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ANALIZA PORÓWNAWCZA METOD FINANSOWANIA WSPIERANIA INNOWACYJNEJ DZIAŁALNOŚCI MŚP W POLSCE

Streszczenie: Innowacje odgrywają kluczową rolę w zapewnieniu zrównoważonego rozwoju gospodarczego. Proces innowacji to fundamentalny element sukcesu firm, korporacji i branż, ale jest przedsięwzięciem kosztownym i wymagającym znacznych środków finansowych. Celem artykułu jest ocena mocnych i słabych stron różnych narzędzi finansowania – w tym dotacji rządowych, pożyczek bankowych, samofinansowania, finansowania społecznościowego, finansowania zalążkowego i kapitału podwyższonego ryzyka – poprzez analizę studiów przypadków i wyników ankiet badawczych. Pierwsza część tego badania poświęcona jest pojęciu, rodzajom i klasyfikacji innowacji. Część empiryczna opiera się na omówieniu wyników badań ankietowych uzyskanych od 59 MŚP, w tym czynników wpływających na decyzje MŚP o pozyskiwaniu finansowania na innowacje. Metodą badawczą zastosowaną w tym badaniu są badania jakościowe w zakresie stosowanych podejść, jak i ilościowe, przy których korzystano z różnych zasobów, w tym materiałów bibliotecznych, artykułów naukowych, danych ankietowych, kwestionariuszy wywiadów z przedsiębiorcami i właścicielami firm. Celem jest analiza przeszkód i możliwości, a także najodpowiedniejszej metody finansowania wymaganej przez małe i średnie przedsiębiorstwa (MŚP) w celu wspierania ich innowacji. Wyniki pokazują, że wybór metody finansowania zależy od kilku czynników, w tym rodzaju i etapu innowacji, zakresu przedsięwzięcia, branży oraz ryzyka, jakie wnosi ze sobą zarówno innowator, jak i inwestor.

Słowa kluczowe: metody finansowania, wsparcie innowacji, Polska, finansowanie zalążkowe, MŚP

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ENTREPRENEURIAL PROFILE IN THE CREATION OF MICRO AND SMALL COMPANIES, A DESCRIPTIVE STUDY WITH UNIVERSITY STUDENTS FROM THE ECONOMIC AND ADMINISTRATIVE AREAS

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Abstract: The objective of this study was to identify the relationship between personal, business, management, and social skills and the entrepreneurship program of students from an educational institution with an entrepreneurial profile in the creation of micro and small companies. The type of research was quantitative, correlational, and non-experimental. The subjects were 320 students from the field of economic and administrative sciences. The instrument was validated by four professors from the Autonomous University of Nuevo León, Autonomous University of Coahuila, Tecnológico de Estudios Superiores de Ecatepec, and the Technological Institute of Sonora and had two sections. In the first, there were 17 general information questions, and the second contained 45 questions on a Likert scale ranging from 1 to 5. Regarding the results, it was demonstrated that personal, business, management, and social skills as well as skills developed in educational programs are significant and have a positive relationship with the entrepreneurial profile for the creation of micro and small businesses. The study provides the basis for other studies that seek to assess the skills of entrepreneurs and the creation of micro and small businesses.

Keywords: business competence, entrepreneurship education program, management competence, personal competence, social competence

JEL Classification: L26, M13

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Introduction

An entrepreneur is of vital importance in society as such a person has skills, competences, and knowledge that have an impact on different areas such as technology, economics, and education, among others, according to the innovative approach that everyone has. Hence the relevance of promoting actions among university students with entrepreneurial features.

According to Gartner (1989), an entrepreneur has three different approaches, such as: (1) the trait approach, which consists of knowing the characteristics of his personality as an entrepreneur, (2) the behavior-based approach, which refers to the activities that are carried out and that result in the creation of a new company or idea, and (3) a mixed approach that combines both approaches and identifies the different roles and functions that the entrepreneur performs and that require certain attributes.

When talking about entrepreneurship, business thinking or focus emerges, which involves business creation, creation of ideas, new products, and new services, which makes this profile of interest to universities that train professionals in all branches of knowledge such as health, natural resources, engineering and technology, economics, administration and finance, social sciences, among others.

The entrepreneurial process is of great interest to higher education institutions; therefore, the learning and skills of students must be focused on the needs of each student. Even when there is no consensus regarding the entrepreneurship process, Alda (2010) presents three phases in entrepreneurship: exploration, implementation, and management. Public universities in Mexico incorporate in their study plans blocks of generic competences related to entrepreneurship and design their courses according to the degree of progress and consolidation in these blocks. The exploration phase carries out the task of incorporating concepts and generating ideas to generate value among those involved; the next phase is the implementation phase, in which the ideas generated are put into action, which allows the development of such competences as planning, organizing, and implementing initiatives. Finally, there is the management phase which has a degree of sustainability and viability. This happens when the idea has been assimilated, and it is possible to proceed to the exploitation of the idea.

The purpose of this study is to identify the relationship between personal, business, management, and social skills, and the entrepreneurship program of students of an educational institution with an entrepreneurial profile in the creation of micro and small companies.

Literature review

Running a company or organization provides information about some activities of the person running it, not only physical but also intellectual, so it is to be expected that an entrepreneur who is physically and mentally well will present a better performance (Volery & Pullich (2010) cited in (Santillán et al., 2015)).

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Among the characteristics of an entrepreneur, creativity is seen as a process or a product, together with risk-taking, innovation, with a constant state of alert for opportunities. In addition, an entrepreneur most of the time seeks to be self-employed; and then seeks the management of small businesses, but at this point, a higher degree of investment, organization, and managerial skills is required. If you persevere in the previous one and have more investment, you are ready to move on to the generation of new products or new businesses and enter a larger investment market such as the stock market or other financial structures, becoming an entrepreneur with experience in your operations. (Martinez, 2016).

Santillán, Gaona and Hernández (2015) in their study "The profile of the entrepreneur who supports private equity funds/entrepreneurial capital in Mexico" present some important skills that allow us to better understand the profile of an entrepreneur. These skills involve the ability to evaluate risks, the desire to make money, integrity, physical and mental health, teamwork, independence, experience, leadership, and familiarity with the objectives.

Another description of the entrepreneurial profile is presented by Moriano and Pací (2005) and Uriarte (2007), cited in Montoya, Chica and Caballero (2019), who highlight the psychological characteristics, as well as the willingness to take risks, innovation, and personal initiative. Characteristics such as hereditary, environmental, and educational are also included.

Kihlstrom (1979) and Anyakoha (2006) conclude that an individual chooses between being an employee or an entrepreneur, and their entrepreneurial profile is distinguished by their attitude towards risk, recognition of opportunities, and commitment to gather resources to satisfy a demand or opportunity identified in the market. Therefore, the personal competences of an entrepreneur are focused on the satisfaction that they feel with the results achieved by their activities.

Regarding the competence to manage, Cobo (2012) comments that this capacity is related to the experience that one has in organizations, thus deriving in business a competence that Alda, Villardón and Elexpuru (2012) describe as one that allows the entrepreneur to perform adequately in the organization.

In terms of social competences, Cobo (2012) refers to personal and intercultural competences that an individual performs to participate effectively in their social and professional life. Social competences also refer to the individual in an interpersonal environment who expresses feelings and attitudes, respects the behavior of others, and commonly deals with immediate problems minimizing the possibility of future problems (Portuguez & Gómez, 2021).

Research methodology

The research was quantitative and descriptive in scope, not experimental. The statistical method of the relationship was applied in order to determine if the variables of the study object are related and to evaluate their trend and type of correlation. This enhances the strength of the variables and the direction of the correlation.

The participants were university students who followed a career in the field of administrative and economic sciences at the Technological Institute of Sonora and took entrepreneurship courses within the curriculum. At the end of the August-December 2021 cycle, the total number of students in the Business Administration course was 827, Public Accounting 679, Tourism Business Administration 297, and Economics and Finance 435; with a total of 2,238 students.

The type of sampling was non-probabilistic and intentional, with a confidence level of 95% and a margin of error of 5%, representing a total of 320 students.

Regarding the materials, an instrument was applied with the objective of acquiring entrepreneurial skills such as personal, business, social, and management skills, as well as skills of the educational program in entrepreneurship that have an impact on the creation of microenterprises. The instrument was validated by professors in the field of economic and administrative sciences of the following universities: (1) Autonomous University of Nuevo León, (2) Technological Institute of Sonora, (3) Autonomous University of Coahuila, and (4) Ecatepec Higher Education Technological Institute for a joint investigation where the entrepreneurial profile of the business career students of the mentioned universities as a whole was evaluated.

The instrument is composed of two sections: the first contains general student information with 17 questions; the second analyses the competences of the entrepreneurial profile with 45 items; the latter with a Likert scale with five response options: (1) totally disagree, (2) disagree, (3) undecided, (4) agree, and (5) totally agree, with an adaptation from Cabana, et al. (2013) and Ibáñez (2012).

The variables are described below and include the questions formulated in each of them.

Table 1. Operationalization of the variables

Variable	Description	Items
Personal Competence	Competence is required for a successful interrelation in self-directed teams, including motivation, expectations, achievement, affiliation, openness to change, and flexibility. It also includes leadership competence, commitment, support, and supervision (Mantilla & García, 2010).	1. I am proud of the results I have achieved in my activities 2. In general, I am sure of my own ideas and abilities 3. What really motivates me is thinking of new ideas that stimulate business 4. I am not afraid of problems and I like to solve them. They are a challenge in my professional activity and I assume responsibility alone 5. I think it is necessary to spend a lot of time planning business activities 6. I think that risking money to start a business scares me 7. Do the people around you usually accept and follow your ideas or opinions?

Variable	Description	Items
Business Competence	Jones and George (2010) cited in Chávez (2012) describe competence as the intention of knowing how to face the changing environment in the business environment, where they will seek to improve the performance of their collaborators and with this understand and manage the organization, including the capacity for taking decisions. Skills to foster creativity and teamwork, share the business vision, and identify problems and opportunities that arise in the environment	1. When you are presented with a problem or task, do you solve it with original solutions? 2. Values are an important factor in starting a business activity 3. You like to make decisions and be your own boss 4. In your opinion, how would you classify your ability to identify business opportunities? 5. You see yourself in the long term with a successful company 6. You like to work in a team 7. You have bargaining power
Management Competence	This competence consists of taking advantage of and shaping the knowledge, skills, and attitudes of people to develop the professional and operational performance that a competitive organization requires. Furthermore, management competence establishes mechanisms to interact among team members, aligning their performance with the strategic objectives of organizations (Chávez, 2012)	1. Do you consider yourself fit to assume responsibilities when facing a complex situation? 2. Do you enjoy motivating those around you, transmitting your desire to “do” important things? 3. The school environment is developing the necessary skills to generate new products and/or services 4. Are you capable of foreseeing opportunities or problems before others? 5. Do you have the skills to transform problems into opportunities? 6. Do you have the knowledge and skills to establish market strategies?
Social Competence	Social competences in the student environment are related to the teaching of information and communication technologies. In this way, students develop empathy and at the same time, acquire information and knowledge about their environment. Personal competences include skills such as teamwork, knowing how to negotiate, using self-control, avoiding problems, taking	1. You are capable of carrying out a venture with your current knowledge and skills acquired in your career 2. You set challenging goals and communicate them easily 3. You are a highly motivated student 4. You have the ability to adapt to new situations that impact your stability

Variable	Description	Items
	initiative, gathering information, solving problems, and focusing on a specific task, among others (Goldstein, Sprafkin, Gershaw, and Klein, 1989 cited in Plaza et al., 2016)	5. Currently, it would be easy for you to form a work team to develop a venture 6. You have the ability to motivate other people to follow you of their own free will
Educational program in entrepreneurship	The importance of including entrepreneurship in education lies in supporting students to increase their intention to do business. The education sector that includes entrepreneurship programs in its study plans improves the perceived abilities, knowledge, and attitudes of individuals (Asimakopoulos et al., 2019 cited in Bravo et al., 2021)	1. Academic skills to teach are sufficient. Promote and strengthen entrepreneurship in your career 2. In your career, there are networks of contacts with institutions that promote entrepreneurship 3. In your institution, there are competitive internal funds to generate ventures 4. The academics of your career constantly stimulate you to develop your entrepreneurial spirit (entrepreneurial profile) 5. The academics of your career have the necessary experience in entrepreneurship, to teach and transmit to their students 6. Your institution has spaces for workshops, seminars, talks or activities related to entrepreneurship 7. In its educational program, subjects are taught in which a business plan is carried out 8. The study program you are studying develops your administrative skills (planning, organizing, directing, and controlling)

Source: Own study based on research

In the procedure, once the sample was identified, an instrument was applied to collect students' opinions on the skills that an entrepreneur should have, such as personal, business, social, and management skills, as well as competences of the entrepreneurship educational program that affect the creation of microenterprises.

The information was collected during the first semester of 2022 and systematized in the Statistical Package for the Social Sciences (SPSS) in its version 17, obtaining the reliability of Cronbach's Alpha of .943 defined as satisfactory according to Taber

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(2018). The hypothesis test was Pearson's correlation and the research hypotheses that emerged were:

H1: Personal competence is a factor that has a positive correlation with the university entrepreneurial profile in the creation of microenterprises in the students of Administrative and Economic Sciences at the Technological Institute of Sonora.

H2: Business competition is a factor that has a positive correlation with the entrepreneurial profile in the creation of microenterprises in students of Administrative and Economic Sciences at the Technological Institute of Sonora.

H3: Management competence is a factor that has a positive correlation with the entrepreneurial profile in the creation of microenterprises in the students of Administrative and Economic Sciences at the Technological Institute of Sonora.

H4: Social competence is a factor that has a positive correlation with the university entrepreneurial profile in the creation of microenterprises in the students of Administrative and Economic Sciences at the Technological Institute of Sonora.

H5: The entrepreneurship education program is a factor that has a positive correlation with the entrepreneurial profile in the creation of microenterprises in the students of Administrative and Economic Sciences at the Technological Institute of Sonora.

The independent variables are (1) personal competence, (2) business competence, (3) management competence, (4) social competence, (5) the educational program in entrepreneurship, and the dependent variable is the creation of microenterprises in the entrepreneurial profile of the student. In the end, the results, conclusions and discussions of the study were presented.

Results

Of the 320 respondents, 35% were men and 68% were women, 96% of respondents were in the age group between 18 and 25 years, and the rest between 26 and 47 years.

Regarding study programs, 44% were students of public accounting, 29% of administration, 19% of economics and finance, and 8% of tourism business administration.

Regarding their perception of the abilities to run a business, the students surveyed commented that 35% have what is necessary although they should complete their practical training, 20% commented that they feel fully capable of undertaking a business, 16% commented that although they do not have the abilities to run a business, they can complement them with other people, 15% said that they have what is necessary but should complete their theoretical training, the rest with a lower percentage commented that their abilities are scarce or that they have not developed them.

57% of those surveyed commented that they had received courses on business creation, in addition to their academic training, and 43% commented that they had not.

As can be seen, there is a perception of having the necessary skills for entrepreneurship. The table below presents a correlation analysis of personal competence, business competence, management competence, social competence, and the educational program in entrepreneurship with respect to the university entrepreneurial profile in the creation of microenterprises in students.

Table 2. Correlation of personal competence and the university entrepreneurial profile in the creation of microenterprises in students

		Personal Competences	**Creation of Microenterprise**
Personal Competence	Pearson correlation	1	0.661**
	Sig. (bilateral)		0.000
	N	320	320
Creation of Microenterprise	Pearson correlation	0.661**	1
	Sig. (bilateral)	0.000	
	N	320	320

** The correlation is significant at the 0.01 level (bilateral).

Source: Own calculations

The significance level in Table 2 is 0.000, which shows that there is a very significant relationship between the variables of personal competence and that of business creation in the student profile and a confidence level of 99%.

The statistical value "r" of Pearson is 0.661, which has a greater relationship between the variables and is interpreted as a median positive correlation according to Hernández, Fernández and Baptista (2014).

The training that entrepreneurs have and their personal traits impact their training as an entrepreneur; on the other hand, experience is not a determining factor for being an entrepreneur, since Martínez (2016) concluded in his study that the young population is the population with the most evidence in entrepreneurial initiatives. In some cases, at a very early age, young people acquire habits and interest in innovation or different alternatives to those offered by the company when it employs them as employees, which benefits the region's economy.

Table 3. Correlation between business competence and the entrepreneurial profile in the creation of microenterprises in students

		Business competence	**Creation of Microenterprise**
Business Competence	Pearson correlation	1	0.695**
	Sig. (bilateral)		0.000
	N	320	320
Creation of Microenterprise	Pearson correlation	0.695**	1
	Sig. (bilateral)	0.000	
	N	320	320

** The correlation is significant at the 0.01 level (bilateral).

Source: Own calculations

The level of significance in Table 3 is 0.000, which shows that there is a very significant relationship between the variables of business competence and the creation of companies in the student profile and a confidence level of 99%.

The statistical value "r" of Pearson is 0.695, which has a greater relationship between the variables and is interpreted as a median positive correlation according to Hernández, Fernández and Baptista (2014).

Table 4. Correlation between management competence and the university entrepreneurial profile in the creation of microenterprises in students

		Competence of Management	Creation of Microenterprise
Competence of Management	Pearson correlation	1	0.623**
	Sig. (bilateral)		0.000
	N	320	320
Creation of Microenterprise	Pearson correlation	0.623**	1
	Sig. (bilateral)	0.000	
	N	320	320

** The correlation is significant at the 0.01 level (bilateral).

Source: Own calculations

The significance level in Table 4 is 0.000, which shows that there is a very significant relationship between the management competence variables and the creation of companies in the student profile and a confidence level of 99%.

The statistical value "r" of Pearson is 0.623, which has a greater relationship between the variables and is interpreted as a median positive correlation according to Hernández, Fernández and Baptista (2014).

Table 5. Correlation of social competence and the university entrepreneurial profile in the creation of microenterprises in students

		Social competence	Creation of Microenterprise
Social Competence	Pearson correlation	1	0.673**
	Sig. (bilateral)		0.000
	N	320	320
Creation of Microenterprise	Pearson correlation	0.673**	1
	Sig. (bilateral)	0.000	
	N	320	320

** The correlation is significant at the 0.01 level (bilateral).

Source: Own calculations

The significance level in Table 5 is 0.000, which shows that there is a very significant relationship between the variables of social competence and the creation of companies in the student profile and a confidence level of 99%.

The statistical value "r" of Pearson is 0.673, which has a greater relationship between the variables and is interpreted as a median positive correlation according to Hernández, Fernández and Baptista (2014). Martínez (2016) in his study comments that the entrepreneur is the result of social interactions such as the customs of the people of the place where they are located, in addition to their own characteristics that they acquire and reinforce.

Table 6. Correlation of the educational program in entrepreneurship and the university entrepreneurial profile in the creation of microenterprises in students

		The educational program in entrepreneurship	**Creation of Microenterprise**
The educational program in entrepreneurship	Pearson correlation	1	0.535**
	Sig. (bilateral)		0.000
	N	320	320
Creation of Microenterprise	Pearson correlation	0.535**	1
	Sig. (bilateral)	0.000	
	N	320	320

** The correlation is significant at the 0.01 level (bilateral).

Source: Own calculations

The level of significance in Table 6 is 0.000, showing that there is a very significant relationship between the competency variables of the entrepreneurial education program and the creation of companies in the student profile and a confidence level of 99%.

Pearson's "r" statistical value is 0.535, which has a greater relationship between the variables and is interpreted as a median positive correlation according to Hernández, Fernández and Baptista (2014).

Regarding the educational aspect, it is a factor with a direct relation to entrepreneurship because the acquired learning broadens the horizons and perspectives of university students on business opportunities. However, a lack of education also allows entrepreneurship to increase out of necessity, but for university students, entrepreneurship promoted in educational institutions will represent entrepreneurship by opportunity (Martínez, 2016).

Conclusions

The correlations of the dependent and independent variables are positive, which means that their relationship is direct, that is, when the data increases, the independent variables also increase the values of the dependent variable.

In a study carried out by Alda, Villardón and Elexpuru (2012), where their objective was to design and validate an entrepreneurial competency profile through the identification of their own tasks in the different phases of the entrepreneurial process, they found that it is of great importance to have competences related to creation and imagination that have a high degree of relationship with entrepreneurial activity, as well as attitudes such as innovation, achievement orientation, risk-taking, proactivity, autonomy, self-confidence, assertiveness, creativity, optimism, audacity and assumption of risk, and competitiveness.

In the study called "Work in self-directed teams: personal skills and behaviors necessary for their success", Mantilla and García (2010) concluded that personal competence was of great relevance to promote behaviors that facilitate the success of self-directed teamwork. In this regard, the results show a very significant relationship between the variables of personal skills and the creation of companies in the profile of the students, which allows us to accept Hypothesis 1.

Regarding business competence and its relationship with the business creation variable in the profile of the students surveyed, according to Hypothesis 2, a highly significant relationship between the variables is observed in the results, so it can be inferred that the competences to face the changing environment in the business environment, seeking to improve the performance of collaborators, identifying problems and opportunities, and making decisions in organizations are competences that are related to the creation of companies.

Chávez (2012) in his article on the competences of management and the exercise of business coaching identifies two internal strategies for the organization and then identifies arguments that allow us to visualize that management competences of collaborators are necessary to improve performance in organizations. In this sense, the results of this research show a very significant relationship between the variables of management competence and the creation of companies in the profile of students, which allows us to accept hypothesis 3.

Hypothesis 4 confirms that social competence is a factor that has a positive correlation with the university entrepreneurial profile in the creation of microenterprises in the students of the field of Administrative and Economic Sciences at the Technological Institute of Sonora; this is because the results show that there is a highly significant relationship between the variables. In this regard, Plaza, Requena and Álvarez (2016) in their study suggested raising awareness of social competences in higher education that allow the well-being of citizens in the present and future, in addition to proposing a further investigation of this type of competences in a business environment with high levels of technology highlighting that social competences are protagonists in the learning processes throughout the life of each individual.

Regarding Hypothesis 5, in view of the fact that the educational entrepreneurship program is a factor that has a positive confirmation with the university entrepreneurial profile in the creation of microenterprises in students of the field of Administrative and Economic Sciences, it was accepted because a highly significant relationship between the variables was found. Bravo, Bravo, Preciado and Mendoza (2021) comment that educational institutions must identify the factors that motivate entrepreneurial activity, highlighting that intention is a key element for business creation, hence the importance of including in study programs actions, courses, and programs that promote entrepreneurship.

The present study contributes in terms of analysis and identification of the significant relationship of personal, business, management, and social competences promoted in the entrepreneurship educational program at the Technological Institute of Sonora, specifically for students in the field of Administrative and Economic Sciences.

Regarding the limitations of the research, it is suggested to increase the sample, as far as possible, to other areas of knowledge such as engineering, natural resources, social sciences, and humanities, to identify if the competences analyzed in this research have the same significant relationship with the university entrepreneurial profile in the creation of microenterprises in students of the educational institution under study.

Therefore, it is important that higher education institutions continue to promote entrepreneurial activities considering the different factors that impact their positioning. More support is needed in the entrepreneurial culture, emphasizing the aspects that favor it and clarifying those that disadvantage it.

When it comes to entrepreneurs, universities direct their efforts to make a change in the way of being, doing, and thinking of students, developing the skills, competences, capacities, and attitudes that allow them to consolidate the entrepreneurial spirit of each individual.

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PROFIL PRZEDSIĘBIORCZOŚCI W TWORZENIU MIKRO I MAŁYCH FIRM. BADANIE OPISOWE ZE STUDENTAMI UNIWERSYTETU Z KIERUNKÓW EKONOMICZNO-ADMINISTRACYJNYCH

Streszczenie: Celem badania było określenie relacji między osobistymi, biznesowymi, menedżerskimi, społecznymi umiejętnościami a programem przedsiębiorczości studentów instytucji edukacyjnej, z profilem przedsiębiorczości w tworzeniu mikroprzedsiębiorstw i małych przedsiębiorstw. Typ badań był ilościowy, korelacyjny i nieeksperymentalny. Badania przeprowadzono z udziałem 320 studentów z kierunków administracyjnych nauk ekonomicznych. Instrument został zatwierdzony przez czterech profesorów z Uniwersytetu Autonomicznego w Nuevo León, Uniwersytetu Autonomicznego w Coahuila, Tecnológico de Estudios Superiores de Ecatepec i Instytutu Technologicznego w Sonorze i składał się z dwóch sekcji. W pierwszej było 17 pytań z informacjami ogólnymi, a w drugiej 45 pytań z użyciem skali Likerta od 1 do 5. Jeśli chodzi o wyniki, wykazano, że kompetencje osobiste, biznesowe, zarządcze, społeczne oraz rozwijane w programach edukacyjnych są istotne i mają pozytywny związek z profilem przedsiębiorczości dla tworzenia mikro i małych firm. Badania stanowią podstawę dla innych badań mających na celu ocenę umiejętności przedsiębiorców oraz tworzenie mikro i małych przedsiębiorstw.

Słowa kluczowe: kompetencja biznesowa, program nauczania przedsiębiorczości, kompetencja zarządzania, kompetencja osobista, kompetencja społeczna

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DATABASE TO IMPLEMENT SMM IN THE MINING SECTOR IN MEXICO

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Abstract: An applied research project is presented, expressed in the design and creation of a database for the company Minera Tierra Adentro (MTA), which belongs to the mining-metallurgical sector of Mexico. This database is designed to implement a Sustainable Management Model (SMM) in the operating units of the sector. The SMM provides an opportunity to observe, measure, and evaluate four Sustainable Development Goals (SDGs) and 16 legislative parameters. Divided into two modules, the database is based, in the first instance covering the territorial sector in Mexico, on an algorithm that represents a qualitative selection technique: pairwise comparison, which allows prioritizing more than 3000 active units, so that MTA offers the implementation of the model. As a second module, the database shows the record of quantifiable elements of the SDGs and legislative parameters collected, This allows, through calculation algorithms, to interpret and express the obtained information in different formats, since by means of an export of data to Excel, the unit staff can use, interpret, include the information in registers, assessments or official documents,

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such as the Environmental Impact Statement (EIM) requested by government agencies. Therefore, this document presents the interfaces created for the two modules that complement the database in which MTA will manage the implementation of the SMM.

Keywords: mining sector, sustainability, technological innovation

JEL Classification: M140, O320, L720

Introduction

Mining is an important sector in the Mexican economy since Mexico is considered a potent country in the production of both metallic and non-metallic mineral. That is why, faced with an industry that is aggressive with the environment, affects natural environments and even the health of people close to the extraction and metallurgical process, various authors affirm that the legislation in the country is permissive, which places it as a target of political and social conflicts. Regarding the problems involving legislation based on the environment, it is necessary to accelerate strategies that adopt best practices (Azamar & Telles, 2022) and are aligned with international standards.

Environmental Management, a platform in which, through strategic planning, efforts to link with public policy and strategies for the effectiveness of the programs to be implemented could coincide, is considered the implementation of a Sustainable Management Model (SMM), which seeks to evaluate current environmental practices and propose substantial improvements (CEPAL, 2018).

Implementing this SMM in the mining sector in Mexico has an extensive and large--scale dynamic. There are around 3,200 active units in the country (SEMARNAT, 2002), so it is essential to have a database that, with the use of a qualitative technique derived from the theory of creative thinking (Dym & Little, 2015), allows, in addition to having general information on the units, to organize and prioritize it in order to select and propose to its leaders the implementation of the model. It also implies that it will be the appropriate digital platform to safeguard the information obtained from current environmental practices. Once the SMM has been implemented, it will be presented in an orderly manner for a correct interpretation by the evaluators or those responsible for environmental management before the relevant authorities.

For the development of this database, valid and relevant algorithms were required in the search for cohesion of concepts and requirements, which resulted in a database presented in two modules. This strategy, considered in the field of information technology, seeks to innovate the process of selection of mining units and presentation of sustainable findings in the field, through a programmable digital format, to show the relevant authorities the current environmental practices, for compliance and improvement in favor of the guarantee of resources for future generations.

Minera Tierra Adentro (MTA), a Mexican company in the mining sector, promotes research and products derived from it in terms of applicability to the guild and promotes it in agreement with researchers and members of Academic Body 7 (CA for its Spanish acronym), belonging to the Technological Institute of San Luis Potosi.

Literary basis

To achieve optimal classifications and selections, the theory of creative thinking has developed techniques that, depending on the objectives set, can create simple or complex exercises or programs. The *technique of comparison by pairs* is used to optimally select units, based on hierarchizations; it classifies subjective criteria in a systematic way, attempting not to mix goals, functions, means, or restrictions (Dym & Little, 2015).

It is assumed that these could be equal in level for all stakeholders because they have not made an effort to distinguish between them the perceived value. In this way, criteria considered in the previous hierarchy are selected, providing a value or relative importance one by one and ordering them later within a matrix (Dym & Little, 2015).

The *Sustainable Management Model (SMM)* (Martínez et al., 2020) is created expressly for the metallurgical mining sector of Mexico, which participates in efforts at the international level through Sustainability Principles and complies with the requirements demanded by the Mining Law of the country, through observable and evident parameters. It is a model that, due to its foundation, can adhere to the strategic plans of Mexican mining units to strengthen their environmental management. The conservation of a safe, clean, healthy, and sustainable environment is vital for the well-being of human beings and the guarantees offered by the right to enjoy them. The SMM contemplates in its construction, two principal axes:

a) There are four sustainable principles that are valued within the fieldwork, extracted from the Agenda 2030 (CEPAL, 2018): SDG 9 *Industry, Innovation and Infrastructure*, SDG 11 *Sustainable Cities and Communities*, SDG 12 *Responsible Production and Consumption,* and SDG 13 *Life of terrestrial ecosystems*.
b) 16 legislative parameters are observed, which are extracted from the Environmental Impact Manifest (EIM), in which the companies have the obligation to describe in the greatest detail how they will carry out the activities requested (SEMARNAT, 2002): *useful lifetime, technical responsible, nature of the project, dimensions, land use, urbanization of the area, site preparation, construction of works, operation and maintenance, abandonment, use of explosives, waste generation and management, infrastructure for waste management and disposal, abiotic aspects, biotic aspects, and landscape*.

Reffering to technological innovation, defined in 1934 by Schumpeter as new ways in which methods or processes, services, or products are commercialized, technological innovation has been gaining strength in economic growth through the substitution of products or technology. Drucker (2006) posited that innovation must present characteristics of utility, simplicity, conceptuality, and perception to be able to generate value while meeting customer expectations and needs.

Thus, when creating new services and goods, produced by technology, companies also tend to create programs that improve performance through productivity, operation, and decision-making.

A sector exploited by technological innovation is related to the digital industry, which has allowed organizations and companies to innovate their processes, concentrating activities and information in general, under schemes of management models

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in digital formats. The use of software defined as ICTs (information technologies) has gestated agility, precision, and flexibility to companies, placing these technological models as strength through progress and impacting the economy (Kijek & Kijek, 2019).

For its part, a database is a collection of related files that allows the management of the information of a company. Each such file can be viewed as a collection of records, and each record is composed of a collection of fields. Each of the fields allows you to carry information on some attribute of a real-world entity. A database is a collection of useful information organized in a specific way (Cruz, 2011).

Companies base their activity on information systems, largely with technological support. The systems are formed by interrelated elements: hardware, software, communications, processes, and people that allow transforming data into information and then into knowledge, making all this available to employees and managers of the organization for decision-making at different levels (INCIBE, 2020).

Within the technical tools used for database development, various programming languages are used: HTML, CSS, JavaScript, PHP, and XAMPP (Gauchat, 2012).

Methodological basis

It is considered a research project that involves a technological innovation within the area of systems programming; the present document handles a mixed approach with explanatory information management, which allows one to demonstrate the interface of the database designed with the systematic, sustainable, and legislative requirements that the MTA company has specified.

Development

The fieldwork carried out is based on the specifications that the MTA company expresses to meet its objectives, so two modules were developed in the database, which allows dosing the information and implementation:

1. Module 1, algorithmic design to prioritize units of analysis through prioritization of qualitative criteria.
2. Module 2, algorithmic design for data concentration that arises from field observations of the unit analyzed according to the environmental practices they perform.

Module 1. Criteria and their levels are classified and a prioritization is made according to them. The expert staff of the company intervenes to carry out this categorization and describes in detail the justification of the arguments.

Considering the metallogenic provinces of the country and the diversity of both metallic and non-metallic minerals, as well as the type of operations for their extraction, are selected, by their nature and availability for fieldwork, division of the various units, corporate to know the financial source, the main and secondary mineral as well as regions that channel the area of expertise of employees and, distance between the unit in question and San Luis Potosi, to consider budgets and profitability.

The criteria and their levels are presented in summary form after documenting them and converting them into algorithms through the programming design (Table 1).

Table 1. Selection criteria

Unit Type	Corporate	Mineral	Trend	Zone	Operation	Distance (km)
Underground Mine	Group- -Campaign	Metallic	Cu-Mo-Au	Northeast	Underground mining	≥ 645
Open pit mine	Small Miner	Non- -metallic	Zn-Pb-Ag- -Cu	Occident	Exploitation Sky Open	< 645 North
Closure stage	Foreign in- vestment	Alloy	Zn-Pb-Ag- -Cu	North	Metallurgy	< 645 South
Refinery	Subsidies	Quarries	Ag-Zn-Cu- -Pb	North Central		Baja California
			Precious basics	Central East		Peninsula
			Iron deposits	Central West		
				South		

Source: Own study based on research

The development of the system was based on Progressive Web Apps (PWA), which allows working both on the traditional web and on native applications for mobile phones and tablets. Ribas (2018) states that the process of booting a PWA is the most important part because it allows the application manifest to be in JSON format. The manifest allows for up-to-date viewing of the app in places where users typically have native apps.

The Service Workers is based on scripts that allow working in offline channels, by lowering the base elements for the operation of the system, as well as presenting push notifications, which are a combination of CSS, HTML, and JavaScript, and behave like the most used native controls.

Web services are a set of applications or technologies with the ability to interoperate on the Web. They exchange data with each other to deliver services. Rest web services are models with a design based on architectural constraints applied to the components, connectors, and data of a distributed hypermedia system. Rest focuses on functions, constraints on their interaction with other components, and interpretation of data (Ribas, 2018).

The interface resulting from the design of Module 1 of the database shows screens that allow to record information regarding the mining units so that the designed algorithm presents a data table that allows one to identify the optimal unit according to the hierarchical criteria, to request the implementation of the SMM. Figure 1 (a, b and c), correspond to the sequence that the user observes on the screen.

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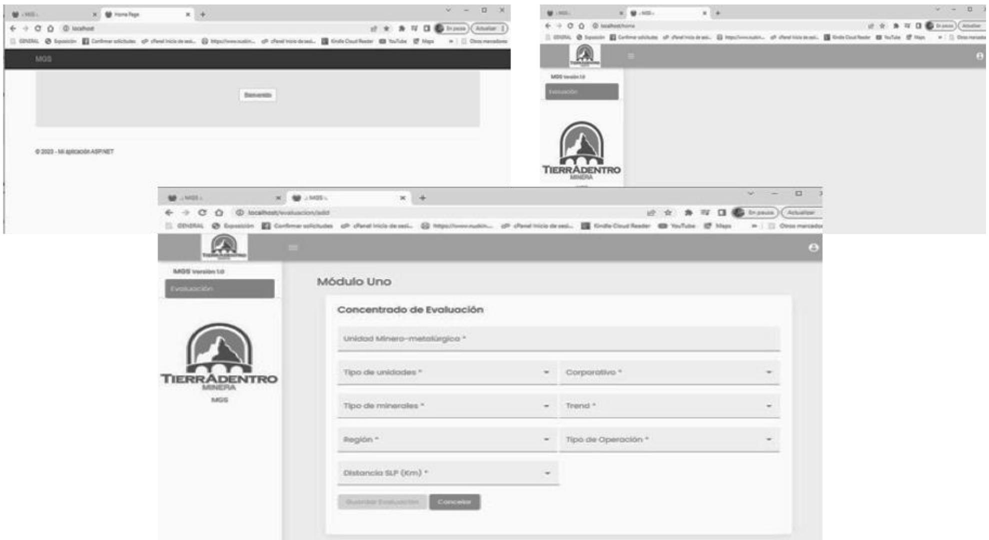

Figure 1. a) User welcome screen; b) Main menu screen; c) Screen to record information of mining units

Source: Own study based on research

The information on the units allows the database to analyze the criteria and yields a calculated value according to the pairwise comparison designed with the algorithms. This is the starting point for the hierarchization of mining units to provide the optimal option for linkage management. Figure 2, allows us to visualize this concentration, which can be exported to Excel so that the user can order and organize according to their needs.

Unidad Minero-metalúrgica	Tipo de unidades	Corporativo	Tipo de Minerales	Trend	Región	Tipo de Operación	Distancia SLP (KM)	Puntaje
Ponderación	1	1	4.5	4.5	2	2	6	21
El Cubo	0.4	0.3	0.5	0.2	0.025	0.4	0.2	5.9
	0.4	0.3	2.25	0.9	0.05	0.8	1.2	
Compañía Minera Fresnillo	0.4	0.3	0.5	0.2	0.025	0.4	0.3	6.5
	0.4	0.3	2.25	0.9	0.05	0.8	1.8	
Mina San José	0.4	0.3	0.5	0.2	0.025	0.4	0.3	6.5
	0.4	0.3	2.25	0.9	0.05	0.8	1.8	
Compañía Minera Cuzcatlán	0.4	0.3	0.5	0.2	0.025	0.4	0.4	7.1
	0.4	0.3	2.25	0.9	0.05	0.8	2.4	
Unidad Minera Velardeña	0.4	0.3	0.5	0.2	0.025	0.4	0.3	6.5
	0.4	0.3	2.25	0.9	0.05	0.8	1.8	
Refinería Electrolítica de Zinc	0.1	0.3	0.5	0.05	0.025	0.2	0.3	5.13
	0.1	0.3	2.25	0.225	0.05	0.4	1.8	
Unidad Minera Navidad	0.4	0.1	0.3	0.05	0.2	0.4	0.4	5.68
	0.4	0.1	1.35	0.225	0.4	0.8	2.4	

Concentrado

Figure 2. Information exported to Excel: Decision-making according to the score obtained

Source: Own study based on research

Module 2. Once the mining unit – hereinafter referred to by MTA as the analysis unit – that yields Module 1, is contacted by company personnel (or a subsequent one as they accept the labor and financial agreement) and it accepts the contract, the SMM is implemented through field observations, interviews with personnel, tours, and review of programs, official documents, and various internal records. This information is deposited in Module 2.

Based on the indicators to be measured for the SDGs, quantifiable elements were identified and their corresponding calculations were introduced by algorithms to the database design in Module 2. These basic percentage calculations are exported after being concentrated in a table that adapts to a template prepared expressly in Excel to be manipulated in graphs or descriptions as required by the unit of analysis, and even the government agencies to which reports, records, or official evaluation documents must be presented, such as the Environmental Impact Manifests (EIM).

The development of the programming included a selection of information or dropdowns (legislative parameters), descriptions (text), and registration of quantitative data (calculation of indicators of the SDGs) as main operation functions; this was achieved with a series of instructions embedded in sequences under the CSS code or language that allows the end user to have visual displays on a *webhost.*

Figure 3 represents the interface in which the user records specific information on the indicators that represent each of the four SDGs evaluated in the SMM. Once concentrated, they are exported to the template designed for further interpretation and evaluation. The registration is carried out by SDGs and by legislative parameters, so the implementation is orderly and organized, but systemic, which allows to see the relationship that exists between sustainable elements and inherent legislative parameters.

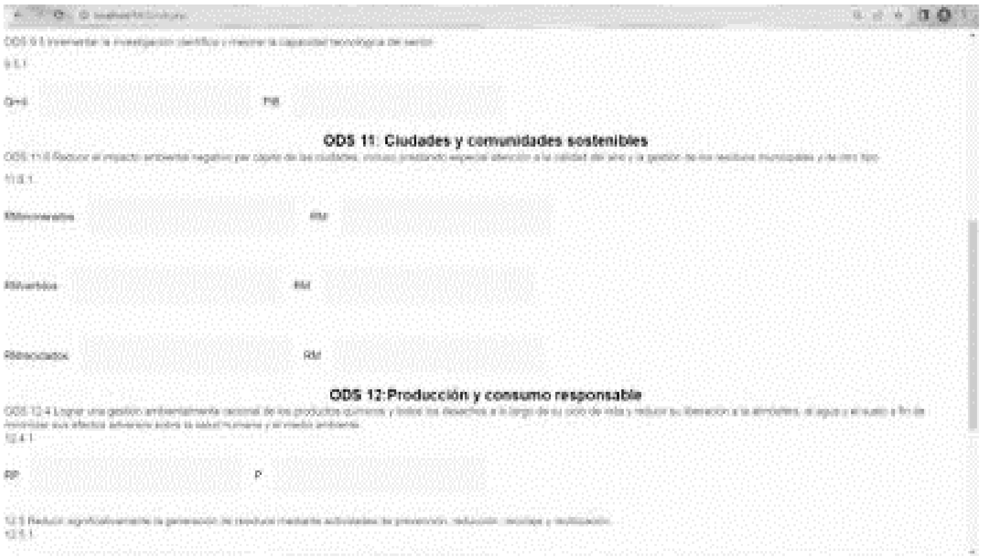

Figure 3. Data registration screens by SDGs

Source: Own study based on research

By performing the export that converted the database into quantitative information regarding SDG´s indicators, a template is obtained that can be used as required by the owners of the environmental process in the analysis unit. The first intention is that it is evidence of compliance with both the international suggestions described in the 2030 Agenda, and the records that the government agency in Mexico, SEMARNAT, through the EIM, requires for the evaluation and issuance of operating permits for the analysis unit.

Figure 4 presents an example of the template once exported to Excel for easy and quick handling of the information obtained from the field, once the SMM has been implemented.

	A	B	C	D	E	F	G	H
1	**Grupo Mexico**							
2	**ODS 9:Industria, Innovacion e Infraestructura**							
3	**9.2.1**							
4	**VABmanufact**	**P**		**VABmanufact**	**PIB**		Valor añadido del sector manufaturero per capita	$ 1.18
5	1487390		126014000	1487390		1.273E+12	Valor añadido del sector manufacturero en proporcion al PIB	0.000117%
6	**9.2.2**							
7	**POmanufact**	**PO**		**EPmanufact**	**EP**		Porcentaje de ocupados en industria manufacturera	15.747%
8	9590000		60900000	9300000		1700000	Empleo del sector manufacturero en proporcion del empleo total	547.059%
9	**9.5.1**							
10	**Gi+d**			**PIB**				
11			54559200000			1.273E+12	Gastos de investigacion y desarrollo en proporcion al PIB	4.286%
12	**ODS 11: Ciudades y Comunidades Sostenibles**							
13	**11.6.1**						Proporcion de residuos incinerados	3.239%
14	**RMincinerados**	**RM**	**RMvertidos**	**RM**	**RMreciclados**	**RM**	Proporcion de residuos vertidos	48.578%
15	1487.15	45909	22301.7	45909	10546.1	45909	Proporcion de residuos reciclados	22.972%
16	**ODS 12:Produccion y Consumo Responsable**							
17	**12.4.1**							
18	**RP**			**P**				
19			7500000			126014000	Total de residuos genrados en la economia per capita	0.06
20	**12.5.1**							
21	**RUR**			**P**				
22			1060000			126014000	orcentaje de residuos reciclados respecto del total de residuos tratado	0.0000230
23	**ODS 15:Vida de Ecosistemas Terrestres**							
24	**15.1.1**							
25	**SBPST**							
26						70.6	Superfice de bosque en proporcion a la superficie total	70.60
27	**15.1.2**							
28	**PLIBT**							
29						36.48	Proporcion de lugares para la biodiversidad terrestre y de agua dulce	36.48

Figure 4. SDG´s indicators exported to a template in Excel

Source: Own study based on research

Conclusions

This document presents a database designed for the company Minera Tierra Adentro, which through the service provided to the country's mining sector, seeks to adapt its resources to the development and evolution of science and technology. Through this applied technological innovation project, MTA seeks to evaluate Sustainable Development Objectives and legislative parameters contemplated in a scenario channeled by a Sustainable Management Model.

Due to the characteristics of the SMM and the properties of the mining deposits in the extension of the national territory, the design of modules through which the implementation of the model is systematized was established as particular objectives. The programming carried out in both modules also allows MTA to handle the information in an agile and practical way, allowing it to throw calculated and ordered information, for follow-up and subsequent internal and external evaluations. As an added value, it also enables saving information in the cloud as historical data.

The selection of open-source programming languages and appropriate codes promotes the project as a special application in the area of engineering that endorses technological innovation. This assumption allows medium and small companies to conduct their efforts in large corporations since they compete in achieving productive goals. The standardization of processes operating under management schemes in digital formats, information security when embedded in computer clouds and agility are advantages of labor practicality, which MTA takes advantage of in the search for competitive advantages that contribute to the mining sector so that it is effectively evaluated in the operability of its environmental practices.

This study presents as a partial result the database, leaving in progress the implementation in mining units that require it, leaving therefore, the continuity of this project in several ways, for example, the implementation in each mining unit, describing the sustainable findings, legal and policy reactions; improving the database, in terms of practicality, calculations made, presentation of information.

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Authors' Contribution: As an Academic Body (CA), the authors have participated in this particular project since its inception two years ago: Dr. Rosa Elia Martínez Torres has worked since its foundation in 2012 in the company Minera Tierra Adentro, participation exists from the approach of the project with the Manager, to the implementation and future monitoring; member of the CA. Dr. Patricia Rivera Acosta has collaborated in research since the agreement made between MTA and the Academic Body in 2018 and, in this particular project since it began, participates in its execution; member and leader of the CA. Master Juana María Huerta González provides the foundation and organizes ideas in relation to the theory and execution of the document; member of the CA. The three researchers participated one hundred percent in this particular project with MTA, in the management, liaison with programmers, and implementation.

Engineer Hugo Saavedra Hernández is the programmer of module 1 (Collaborator of the CA), as well as the student Emiliano Osiel Tello Celestino is the programmer of module 2 (participant of the CA), both under the technical advice of Engineer Juan Antonio Alvarado Cano, specialist Developer and member of the CA; participation in the project is predominantly in the programming and implementation part.

Conflict of Interest: There is no conflict of interest, because the information received from the company Minera Tierra Adentro, is not confidential, but for public use, because it is only a database that will be used for internal administration purposes. The information generated from the implementation will be in files of both the analyzed unit and the MTA under collaboration contracts. The participation of Academic Body 7 of the Technological Institute of San Luis Potosí, covers roles of execution, not of information acquisition. The diffusion of the collaboration that takes place is endorsed by Minera Tierra Adentro, as long as it is declared in terms of knowledge management and its application, both for the mining sector and for the education sector.

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BAZA DANYCH DO WDROŻENIA SMM W SEKTORZE GÓRNICTWA W MEKSYKU

Streszczenie: Przedstawiono projekt badań stosowanych, wyrażający się w zaprojektowaniu i stworzeniu bazy danych dla firmy Minera Tierra Adentro (MTA), należącej do sektora wydobywczego. Ta baza danych została zaprojektowana w celu wdrożenia modelu zrównoważonego zarządzania (SMM – Sustainable Management Model) w jednostkach operacyjnych sektora. Model daje możliwość obserwacji, pomiaru i oceny czterech celów zrównoważonego rozwoju i 16 parametrów legislacyjnych. Baza danych, podzielona na dwa moduły, opiera się przede wszystkim na algorytmie reprezentującym technikę selekcji jakościowej: porównanie parami, co pozwala nadać priorytet ponad 3000 aktywnych jednostek, dzięki czemu MTA oferuje wdrażanie modelu. Jako drugi moduł baza danych przedstawia zapis wymiernych elementów zebranych celów zrównoważonego rozwoju i para-metrów legislacyjnych, co pozwala, za pomocą algorytmów obliczeniowych, na interpretację i wyrażenie uzyskanych informacji w różnych formatach, ponieważ za pomocą eksportowania danych do programu Excel personel może wykorzystywać, interpretować i włączać je do zapisów, ocen lub oficjalnych dokumentów, takich jak oświadczenie o oddziaływaniu na środowisko (EIA – Environmental Impact Statement) wymagany przez agencje rządowe. Dlatego w niniejszym artykule przedstawiono interfejsy utworzone dla dwóch modułów, które uzupełniają bazę danych, w której MTA będzie zarządzać wdrożeniem SMM.

Słowa kluczowe: sektor wydobywczy, zrównoważony rozwój, innowacje technologiczne

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SPOSOBY POZYSKIWANIA DAROWIZN PIENIĘŻNYCH ZA POŚREDNICTWEM STRON INTERNETOWYCH – ANALIZA PORÓWNAWCZA AMERYKAŃSKICH I POLSKICH ORGANIZACJI NON PROFIT

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Streszczenie: Organizacje non profit często opierają swoją działalność na indywidualnych darczyńcach. W zależności od kraju i panujących tam uwarunkowań społeczno-ekonomicznych powinny one oferować rozmaite sposoby przekazywania środków. Należy zatem założyć, iż w różnych krajach mogą być dostępne inne mechanizmy przekazywania środków. Celem badań prezentowanych w niniejszym artykule jest identyfikacja narzędzi pozyskiwania środków finansowych, oferowanych przez badane organizacje non profit za pośrednictwem stron WWW. W ramach badania analizie poddano strony internetowe 100 największych pod względem przychodów polskich i amerykańskich organizacji non profit. W przypadku USA były to organizacje klasyfikowane jako 501(c)(3), natomiast w przypadku Polski – organizacje pożytku publicznego (OPP). W wyniku przeprowadzonych badań stwierdzono, iż amerykańskie organizacje stwarzają potencjalnym darczyńcom więcej możliwości przekazania środków finansowych. Ponadto badania wykazały, iż udostępniane przez non profit sposoby transferu środków pieniężnych w ramach darowizn na rzecz konkretnych organizacji różnią się w zależności od kraju.

Słowa kluczowe: donacja, filantropia, organizacja non profit

Kod klasyfikacji JEL: D20, G23, L31

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Wprowadzenie

Organizacje non profit odgrywają kluczową rolę w rozwiązywaniu problemów społecznych, środowiskowych i humanitarnych na całym świecie. Jednakże do realizacji swoich celów potrzebują odpowiednich zasobów finansowych. Zasoby te często zależą od hojności darczyńców i dobrowolnych wpłat. Dlatego też zbieranie funduszy wśród wielu indywidualnych darczyńców jest kluczową kwestią dla przeważającej liczby organizacji non profit. Ważnym zagadnieniem w tej aktywności jest wzbudzenie zaufania u potencjalnego darczyńcy (Andaleeb & Basu, 1995; Sargeant & Lee, 2002; MacMillan et al., 2005; Alhidari et al., 2018; Behl et al., 2023), co podkreślano zarówno w amerykańskich (Shaz & Hillyer, 2010; Francioni et al., 2021; Kaurov et al., 2022), jak i polskich (Wojciechowski, 2009; Pawlikowski et al., 2022; Schiffling & Piotrowicz, 2022) warunkach. Ważnym aspektem jest tworzenie odpowiednich narzędzi lub funkcjonalności w celu jak najlepszego dopasowania sposobów przekazywania donacji do profilu i przyzwyczajeń potencjalnego darczyńcy. Dotyczy to także stron internetowych. Tym bardziej, iż określone narzędzia i funkcjonalności determinują zaufanie i postrzeganie organizacji przez potencjalnego darczyńcę. Dotyczyć to może choćby takich kwestii jak dialogowość stron internetowych (Kent & Taylor, 1998; Ingenhoff & Koelling, 2010; Olinski & Szamrowski, 2017; Olinski & Szamrowski, 2018), budowanie wiarygodności poprzez strony internetowe (Kensicki, 2003; Long & Chiagouris, 2006; Kenix, 2007), zarządzanie relacjami z darczyńcami (Waters & Feneley, 2013; Uzunoğlu, & Kip, 2014; Pressgrove et al., 2015; Olinski & Szamrowski, 2020).

W niniejszym artykule dokonuje się analizy amerykańskich i polskich organizacji non profit. Organizacje te prowadzą bardzo różną działalność. Około 1,3 miliona amerykańskich organizacji charytatywnych karmi, leczy, zapewnia schronienie, edukuje, opiekuje się i inspiruje ludzi niezależnie od wieku, płci, rasy oraz statusu społeczno-ekonomicznego. Aż 88% amerykańskich organizacji non profit ma budżet poniżej 500 000 USD i działa na poziomie lokalnym. Amerykańskie organizacje non profit wydają prawie 2 biliony dolarów rocznie i zatrudniają ponad 10% całkowitej prywatnej siły roboczej w Stanach Zjednoczonych (National Council of Nonprofits, 2019).

Według danych GUS w 2020 roku w Polsce zarejestrowanych było 95,2 tys. organizacji non profit. Zatrudniały 150,3 tys. pełnoetatowych pracowników, co stanowiło 1,4% przeciętnego wskaźnika zatrudnienia w gospodarce narodowej (Departament Badań Społecznych, 2020). Najliczniejszą grupę organizacji non profit w Polsce stanowiły stowarzyszenia (66,8 tys., tj. 70,1%), następnie fundacje (16,0 tys., tj. 16,8%). Polskie organizacje non profit zajmują się różnorodną i multidyscyplinarną działalnością. Zdecydowana większość organizacji non profit prowadziła wyłącznie nieodpłatną działalność statutową – 81,4%. Pozostałe 18,6% podmiotów zadeklarowało prowadzenie odpłatnej działalności statutowej lub gospodarczej, z czego 2,9% stanowiły organizacje obsługujące środki z obu tych źródeł. W 2020 roku łączna suma przychodów osiągniętych przez organizacje pozarządowe przekroczyła 34 mld zł. Dwie najliczniejsze grupy podmiotów – stowarzyszenia i fundacje – osiągnęły przychody w wysokości 28,4 mld zł, co stanowiło 82,4% wszystkich środków finansowych zgromadzonych przez organizacje non profit (Departament Badań Społecznych, 2020). Łącznie wszystkie organizacje non profit w Polsce wytwarzają ponad 1% krajowego PKB (PortfelPolaka.pl, 2021).

Liczebność organizacji pożytku publicznego na koniec 2021 roku szacowano na 9,4 tys. Stanowiły one 9,7% wszystkich aktywnych organizacji non profit (Główny Urząd Statystyczny, 2022). Organizacje te są także coraz sprawniejsze w pozyskiwaniu środków z tzw. 1,5% (dawniej 1%) należnego podatku dochodowego od osób fizycznych. W samym 2022 roku wpłynął z tego tytułu na rzecz OPP ponad 1 mld zł, a wsparcie przekazało prawie 16 mln podatników (Ministerstwo Finansów, 2023).

Jak wynika z powyższego, polskie i amerykańskie organizacje non profit mają różne dziedziny, zasięg i formy statutowej działalności – działają jednak na rzecz dobra publicznego, nie dążąc do osiągania zysku. Pomimo pewnych podobieństw, spodziewać się należy również różnic w ich funkcjonowaniu. Dotyczy to także prowadzenia działań fundraisingowych i sposobów pozyskiwania donacji od indywidualnych darczyńców. Stan gospodarki, charakterystyka darczyńców, uwarunkowania kulturowe i wiele innych czynników z pewnością odgrywają zasadniczą rolę w kreowaniu różnych modeli finansowania działalności organizacji non profit i kreowania przez nie różnych możliwości przekazywania donacji na rzecz konkretnej organizacji. Stąd też celem prezentowanych w niniejszym artykule badań jest identyfikacja narzędzi pozyskiwania środków finansowych, oferowanych przez badane organizacje non profit za pośrednictwem stron WWW. Tezą badania jest założenie o występowaniu różnic w oferowanych przez amerykańskie i polskie organizacje non profit sposobach pozyskiwania tychże darowizn.

Przegląd literatury

Zachowania darczyńców, jak i cała działalność charytatywna przykuwają w ostatnich latach uwagę teoretyków i praktyków na całym świecie – głównie z powodu kryzysu finansowego z 2008 roku, w wyniku którego ograniczono znacznie fundusze rządowe dla organizacji non profit (Kumar & Chakrabarti, 2021). Pandemia COVID-19 również stanowiła poważne wyzwanie nie tylko dla funkcjonowania wielu organizacji (Yang, 2020; Holcomb et al., 2022; Plaisance, 2022), ale także dla ich sytuacji finansowej (Kim, & Mason, 2021; Johnson et al., 2021; Intindola & Burke-Kolehmainen, 2023). W związku ze zmianami w otoczeniu organizacji non profit wiele z nich zaczęło dywersyfikować swoje przychody, uznając, iż sprzyja to stabilności ich działania (Hung & Hager, 2019; Lu et al., 2019; Mikołajczak, 2019; Qu, 2019; Tariq et al., 2023). Jednym ze sposobów dywersyfikacji jest uzyskiwanie donacji od indywidualnych darczyńców. Wprawdzie wpłaty od indywidualnych osób często nie są tak duże jak realizacja konkretnych projektów finansowanych ze środków publicznych lub bezpośrednie dotacje przekazywane przez rządy centralne, samorządy lub inne agendy państwowe, niemniej jednak potencjalna liczba indywidualnych darczyńców jest dużo większa, co może czynić takie źródło finansowania atrakcyjnym. Pozwala to również na zwiększenie niezależności od sektora publicznego i związanego z tym nacisku polityków – problem ten jest poruszany już od wielu lat przez praktyków i teoretyków zajmujących się funkcjonowaniem organizacji non profit (np. Chang & Tuckman, 1994; Carroll & Statera, 2008). Przy tym większa niezależność od sektora publicznego nie sprowadza się jedynie do podłoża ideologicznego – w wymiarze praktycznym skutkuje ona większą elastycznością wydatków (Shon et al., 2019), a także radzeniem sobie z oporem pracowników sektora publicznego wobec zmian (Krukowski et al., 2023). Naturalnie owa elastyczność nie oznacza całkowitej dowolności wydatkowania pieniędzy i braku transparentności, wręcz odwrotnie – położenie większego nacisku na uzyskiwanie donacji od indywidualnych darczyńców wymaga od organizacji prowadzenia odpowiedniej polityki informacyjnej zainteresowanym stronom, tak aby wzbudzić ich zaufanie i chęć wsparcia. Na problem ten zwraca uwagę wielu autorów (m.in. Okten & Weisbrod, 2000; Parsons & Trussel, 2008; Harris & Neely, 2021). Jednakże aby uzyskać szereg pozytywnych efektów, związanych z pozyskiwaniem donacji od indywidualnych darczyńców, należy umiejętnie o to wsparcie zabiegać. Jednym ze sposobów dotarcia do potencjalnych darczyńców jest obecnie Internet. Znaczenie Internetu dla fundraisingu organizacji non profit jest podkreślane od wielu lat (np. Olsen et al., 2001; Hart, 2002; Pollach et al., 2005; Waters, 2007a; Treiblmaier & Pollach, 2008). Dlatego wiele organizacji zaczęło analizować różnice w charakterystyce darczyńców online i offline (Goecks et al., 2008; Lee & Shon, 2021) oraz badać, dlaczego ludzie w ogóle przekazują datki online (Van Slyke & Brooks, 2005; Tremblay-Boire & Prakash, 2017). Przy tym stworzenie wielu możliwości transferu środków finansowych jak najlepiej dopasowanych do potrzeb darczyńców jest ważnym elementem w tym zakresie (Waters, 2007b; Saxton & Guo, 2011; Hoefer, 2012). Pozyskiwanie donacji za pomocą poszczególnych kanałów online może też być tańszą alternatywą w porównaniu ze zdobywaniem datków w realnym świecie (Pollach et al., 2005; Ozdemir et al., 2010; Nageswarakurukkal, 2020).

Dlatego też analiza sposobów przekazywania donacji w Internecie odnośnie polskich organizacji non profit, jak też porównywanie ich z podmiotami funkcjonującymi w innych krajach (szczególnie tych zaawansowanych elektronicznie) mogą być pomocne dla dalszego ich rozwoju oraz działań charytatywnych. Ponadto jest to interesujący obszar dociekań dla wielu badaczy zajmujących się organizacjami non profit – tym bardziej, że w polskim dorobku naukowym występuje wyraźna luka w tym obszarze.

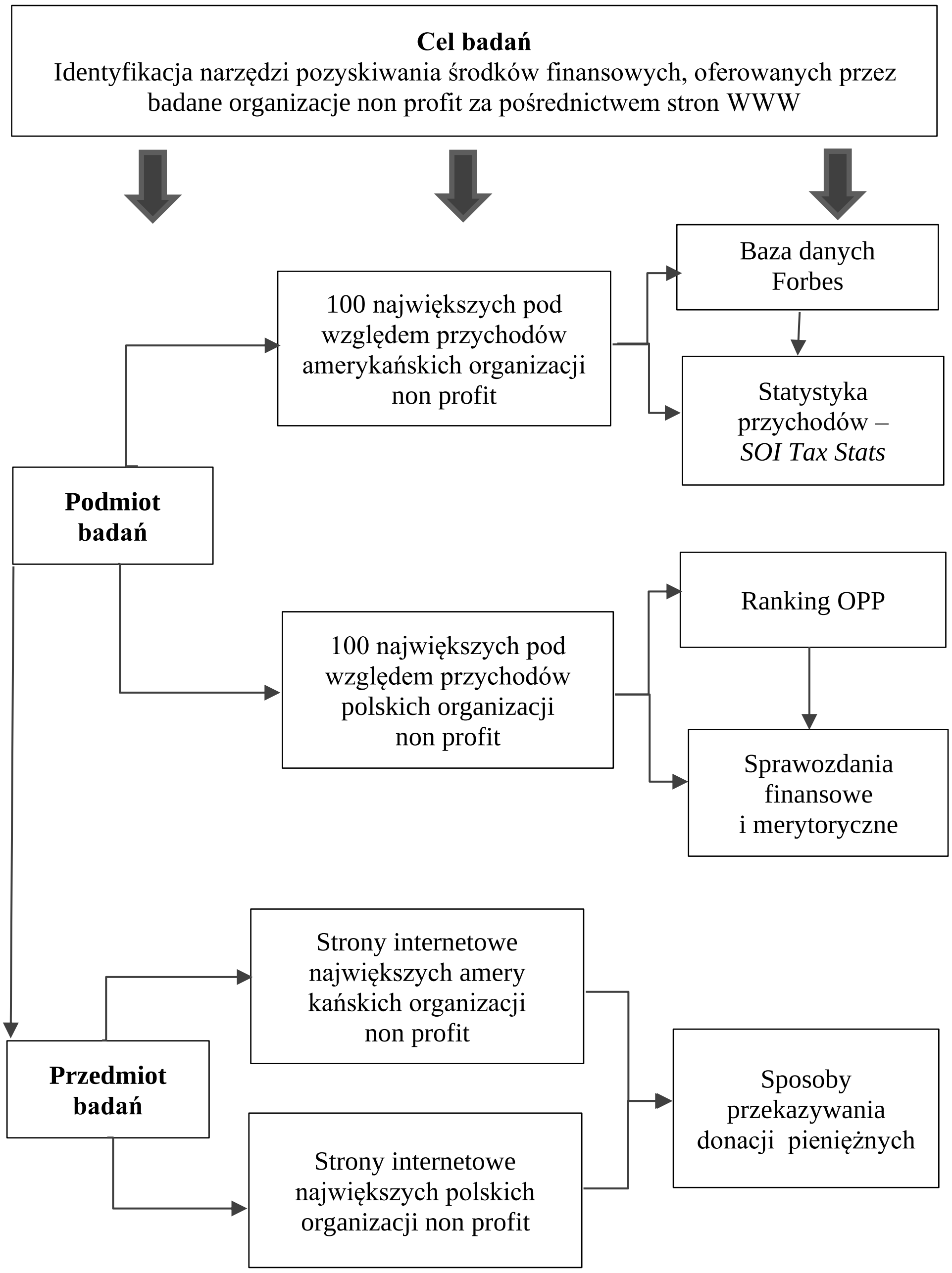
Metodyka badawcza

Badaniami objęto największe amerykańskie i polskie organizacje non profit, o określonych cechach wspólnych. W Stanach Zjednoczonych były to organizacje 501(c)(3). Są to organizacje różnego rodzaju, np. korporacje (*corporations*) trusty (*trusts*), stowarzyszenia nieposiadające osobowości prawnej (*unincorporated associations*) lub inne rodzaje organizacji. Ich główną cechą jest to, iż osoby dokonujące darowizn mogą je odliczyć od podatku dochodowego. Tym samym są to organizacje, które „walczą na rynku” o bardzo liczne grono drobnych darczyńców, którzy mają szeroki wybór potencjalnych organizacji tego typu do wsparcia. Tworzy się zatem swoisty rynek z popytem na darowizny i ich podażą. W tym względzie są one podobne do polskich organizacji pożytku publicznego. Organizacje pożytku publicznego, podobnie jak amerykańskie 501(c)(3), mogą przyjmować różne formy prawne. Najczęściej są to stowarzyszenia i fundacje, ale mogą to też być np. spółki akcyjne lub spółki z ograniczoną odpowiedzialnością niedziałające w celu osiągnięcia zysku. Konkurują one o 1,5%[2] podatku dochodowego od osób fizycznych (PIT), który zgodnie z przepisami może być przeznaczony na wybraną OPP. Przy tym mechanizm funkcjonuje w ten sposób, iż podatnik dokonuje indywidualnej i autonomicznej decyzji co do konkretnej organizacji, którą chce wesprzeć, a urząd skarbowy jest zobowiązany do przekazania 1,5% podatku na jej rzecz.

W celu wyłonienia 100 największych pod względem przychodów organizacji w USA i Polsce przeanalizowano dostępne bazy danych (Forbes, 2022; Ranking OPP, 2022), a następnie uzyskane dane skonfrontowano ze sprawozdaniami poszczególnych organizacji. W USA są to coroczne zestawienia danych finansowych organizacji zwolnionych z podatku (*Annual Extracts of Tax – Exempt Organization Financial Data*), a więc tych, które spełniają wymogi określone w art. 501(c)(3) Kodeksu Skarbowego Stanów Zjednoczonych. *Annual Extracts of Tax* zawierają zestaw danych, które organizacje muszą zgłaszać corocznie w celu spełnienia wymagań podatkowych. Zestawienia finansowe zawierają takie dane jak dochody, wydatki, aktywa, pasywa i inne informacje związane z ich działalnością. Te dane są używane zarówno przez urząd podatkowy w USA (tzw. *Internal Revenue Service* – IRS), jak i osoby zainteresowane (np. badaczy, dziennikarzy, darczyńców) chcące ocenić działalność i stabilność finansową organizacji zwolnionych z podatku. Dzięki nim można ocenić, jak organizacje wykorzystują swoje środki, czy działają zgodnie z prawem i jakie cele charytatywne realizują. W Polsce podstawą weryfikacji danych finansowych były sprawozdania finansowe i merytoryczne składane przez OPP. Dla wszystkich organizacji pożytku publicznego występuje bowiem w Polsce obowiązek zamieszczania sprawozdań merytorycznych i finansowych ze swojej działalności. Przy tym obowiązek ten dotyczy wszystkich organizacji pożytku publicznego, bez względu na to, czy są one uprawnione do otrzymania 1,5% podatku PIT, czy też nie. Sprawozdania te są umieszczane na stronie internetowej Narodowego Instytutu Wolności (Narodowy Instytut Wolności, 2023) oraz eKRS Ministerstwa Sprawiedliwości (Ministerstwo Sprawiedliwości, 2023).

Następnie, po stworzeniu listy największych pod względem przychodów amerykańskich oraz polskich organizacji non profit, poddano analizie (metodą analizy treści – *content analysis*) ich strony internetowe. Posłużono się w tym celu specjalnie skonstruowanym arkuszem, w którym wpisywano określone treści pozyskane z witryn internetowych lub wstawiano odpowiednią cyfrę – w zależności od tego, czy dany element występuje, czy też nie. Przebieg całego procesu badawczego zilustrowano na Rysunku 1.

[2] Do 2021 roku podatnicy mogli przeznaczyć 1% podatku PIT na rzecz OPP. Stawka 1,5% obwiązuje dla rozliczeń PIT za 2022 rok, co oznacza, że OPP mogły otrzymać tę wysokość wsparcia dopiero w 2023 roku.



Rysunek 1. Proces badawczy

Źródło: Opracowanie własne na podstawie badań

Zarówno w przypadku podmiotów badawczych z USA, jak i z Polski dane finansowe dotyczą 2021 roku.

Wyniki badań

W ramach przeprowadzonych analiz stron internetowych amerykańskich i polskich organizacji non profit zidentyfikowano konkretne możliwości przekazywania donacji w postaci środków pieniężnych.

W amerykańskich organizacjach najczęściej stosowane były:

– *Darowizna czekiem (pocztą)* – na stronie internetowej organizacji jest informacja dotycząca możliwości przekazania darowizny czekiem lub pocztą. Polega to na wysłaniu (np. pocztą) „fizycznego" czeku lub przekazu pieniężnego. Proces jest prosty, choć wymaga poświęcenia czasu przez darczyńcę, musi on bowiem wypisać w konkretnej placówce czek lub przekaz pieniężny, który następnie wysyłany jest na adres wskazanej organizacji non profit. Dopiero po tym organizacja zdeponuje czek na swoim koncie bankowym. Zatem otrzymanie darowizny przez organizację non profit w takiej formie może potrwać dłużej niż w przypadku np. przelewów bankowych. Wynika to z faktu, że organizacja musi poczekać na nadejście czeku pocztą, a następnie zdeponować go na własnym koncie bankowym.
– *Darowizna e-czekiem* – jest to elektroniczna wersja czeku papierowego, używana do dokonywania płatności online. Cały proces polega na przekazywaniu środków z konta bankowego darczyńcy na konto odbiorcy. Specyfika e-czeku polega na szczególnym rodzaju elektronicznego transferu środków do przetwarzania płatności. Zatem przy przekazaniu darowizny za pomocą e-czeku należy podać 9-cyfrowy kod identyfikujący bank darczyńcy i numer konta.
– *Darowizna Google Pay* – jest to usługa płatności mobilnych i portfela cyfrowego, która umożliwia darczyńcom przechowywanie wszystkich kart kredytowych i członkowskich w portfelach mobilnych. Po dodaniu karty kredytowej Google Pay automatycznie pojawi się na formularzu darowizny. Darczyńcy wprowadzają swoje dane i wskazują kwotę do przekazania.
– *Darowizna kryptowalut* – przekazywanie walut cyfrowych jako darowizn na rzecz organizacji non profit może odbywać się na różne sposoby, np. organizacje mogą korzystać z procesora płatności kryptowalutowych, takiego jak BitPay. Darowiznę przekazuje się bezpośrednio do portfela organizacji za pomocą transakcji P2P lub można ją przetransferować za pośrednictwem funduszu doradzającego darczyńcy.
– *Karta kredytowa* – darowizna „przechodzi" przez bramkę płatniczą procesora płatności i jest sprawdzana pod kątem potencjalnych oszustw. Dlatego jeśli darowizna jest dokonywana kartą kredytową, podmiot przetwarzający płatności skontaktuje się z organizacją obsługującą karty i prześle informacje o dawcy do jego banku. Następnie bank darczyńcy sprawdza, czy na danym koncie znajdują się środki w wystarczającej wysokości. W przypadku pozytywnej weryfikacji darowizna jest pobierana z konta dawcy i przekazywana na konto organizacji

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non profit, która automatycznie posiada informacje wprowadzone przez darczyńcę w trakcie przekazywania darowizny. Zatem informacje o darczyńcy trafiają do bazy danych wspartej organizacji non profit.

– *PayPal* – system ten zapewnia konto internetowe, dzięki któremu można łatwo wysyłać pieniądze z rozmaitych źródeł. Informacje są wprowadzane tylko na początku, podczas zakładania konta. Następnie podczas transferu pieniędzy wystarczy się zalogować z wybranym hasłem i potwierdzić płatność jednym kliknięciem. Zatem gdy darczyńca wejdzie na stronę internetową konkretnej organizacji non profit i kliknie przycisk, pieniądze trafią z jego konta PayPal na konto bankowe tej organizacji.
– *Płatny SMS* – uzgodnione z operatorem przekazywanie całości lub części pieniędzy z SMS-ów na rzecz konkretnej organizacji non profit.
– *Przelew bankowy* – przekazywanie darowizn na rzecz amerykańskich organizacji non profit przelewem bankowym jest możliwe dzięki płatnościom *Automated Clearing House* (ACH). Darczyńcy na ogół wpisują swoje konto bankowe i numery rozliczeniowe w formularzu online, a darowizna zostanie przekazana automatycznie. W tej metodzie wykorzystuje się również tzw. „*wire transfer*", który jest zazwyczaj szybszy niż tradycyjny przelew bankowy.

Z kolei w przypadku polskich organizacji zidentyfikowano następujące możliwości przekazywania darowizn finansowych:

– *Przelew online* – przesłanie środków pomiędzy bankami (lub w ramach jednego banku). Badane organizacje non profit wykorzystują różne systemy płatności. Wymienione mechanizmy płatności są wygodniejsze i szybsze do wykonania niż tradycyjny przelew bankowy – nie ma konieczności uzupełniania danych.
– *PayPal* – o którym pisano wyżej w odniesieniu do amerykańskich organizacji. Wydzielenie PayPala spośród innych sposobów płatności (np. przelewów online) jest spowodowane specyfiką tego mechanizmu – a mianowicie utworzenia swoistego portfela elektronicznego (wirtualnego), zintegrowanego z dodanym do niego kontem bankowym lub kartą kredytową (debetową), co umożliwia bezpieczne przekazywanie środków.
– *Płatny SMS* – mechanizm został już omówiony w trakcie analizy amerykańskich organizacji.
– *Tradycyjny przelew bankowy* – podobnie jak w USA polega na podaniu numeru konta bankowego na stronie internetowej organizacji non profit. Potencjalny darczyńca samodzielnie dokonuje przelewu (w rozmaity sposób), wpisując numer konta i dane organizacji.
– *Subkonto* – narzędzie pozwalające na wyodrębnienie środków finansowych na rzecz konkretnych beneficjentów. Działa ono w ramach ogólnego konta bankowego organizacji. Numer subkonta jest indywidualny i pozwala na dokonywanie wpłat darowizn czy 1,5% na konkretny cel (np. możliwość ukierunkowania darowizny na dany projekt, adoptowanie zwierzęcia itp.).
– *Platforma pomocy* – pozwala użytkownikom wybrać cel społeczny lub organizację, którą chcą wesprzeć finansowo (taką platformą jest np. Siepomaga.pl).

Platformy są prowadzone przez zewnętrzne organizacje (czyli np. przez Fundację Siepomaga) i wiążą się z kosztami prowizji.

– *Darowizna Facebook* – możliwość datku przez Facebooka lub zorganizowanie zbiórki na Facebooku. Środki tym sposobem można przekazać na rzecz danej organizacji bezpośrednio na stronie organizacji dobroczynnej (klikając przycisk „Przekaż datek") lub z poziomu zbiórki na Facebooku.

Zbiorcze zestawienie zidentyfikowanych sposobów przekazywania środków pieniężnych przez darczyńców na rzecz konkretnych organizacji wraz z liczbą podmiotów, które takie mechanizmy wykorzystują w procesie donacji, przedstawiono w Tabeli 1.

Tabela 1. Sposoby pozyskiwania donacji pieniężnych przez organizacje non profit z USA i Polski

Sposoby donacji	USA	Polska
Darowizna czekiem	32%	0%
Darowizna e-czekiem	10%	0%
Darowizna Facebook	0%	35%
Darowizna Google Pay	29%	0%
Darowizna kryptowalut	31%	0%
Karta kredytowa	93%	0%
PayPal	65%	7%
Platforma pomocy	0%	3%
Płatny SMS	13%	4%
Przelew bankowy	61%	72%
Przelew online	0%	56%
Subkonto	0%	27%

Źródło: Opracowanie własne na podstawie badań

Odnośnie używania w obu krajach systemów wysyłania oraz odbierania płatności przez Internet należy zwrócić uwagę na dużą rozbieżność w częstotliwości ich wykorzystywania. Tytułem przykładu – system PayPal jest używany przez organizacje z obu krajów. Niemniej jednak częstotliwość wykorzystywania PayPala jest w USA ponad 9-krotnie wyższa niż w przypadku polskich organizacji. Wynika to zapewne z popularności PayPala w USA. Według badań aż 22% dorosłej populacji USA używa przede wszystkim systemu PayPal jako portfela cyfrowego. I choć według statystyk z 2023 roku PayPal jest bardziej popularny w Europie niż w Ameryce Północnej, to jednak jest to spowodowane dużą popularnością tego systemu w kilku krajach UE – głównie Wielkiej Brytanii, Włoch, Francji, Hiszpanii (MarketSplash, 2023). Ponadto według statystyk największa grupa demograficzna (aż 29%) użytkowników PayPala w Stanach Zjednoczonych to osoby w wieku od 50 do 64 lat (Moneyzine, 2023). Jest to wiek, który sprzyja skłonności do przekazywania donacji. Według badań przekazywanie donacji przez osoby indywidualne w USA osiąga

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szczyt w wieku 61-75 lat, kiedy to 77% gospodarstw domowych przekazuje darowizny – w porównaniu z nieco ponad 60% wśród gospodarstw domowych, którymi kieruje osoba w wieku od 26 do 45 lat (Philanthropy Rountable, 2023). Nie dziwi zatem fakt, że większość organizacji non profit w USA umożliwia transfer środków tym kanałem. PayPal jest również popularny z innego powodu. W Tabeli 1 dostrzec można wyraźną różnicę odnośnie możliwości płacenia w kryptowalutach. W Polsce opcja taka praktycznie nie występuje, natomiast w USA blisko co trzecia organizacja informuje na stronach internetowych o możliwości przekazywania datków w różnych kryptowalutach (często są nawet zakładki z nazwami różnych kryptowalut). PayPal włączył do swojej oferty płatności kryptowalutowe – zauważyć zatem można, iż zidentyfikowane w trakcie badań sposoby przekazywania środków rozpatrywać należy raczej jako system połączonych ze sobą możliwości, a nie osobne mechanizmy, które nie oddziałują na siebie nawzajem. Jak podaje portal BitHub, powołując się na analizy Google Trends, bitcoin jest najczęściej wyszukiwanym hasłem w USA (BitHub, 2023). Organizacje non profit elastycznie dostosowały się do dużej popularności kryptowalut w USA i stworzyły kanały umożliwiające sprawne przekazanie środków w tej formie[3], natomiast w Polsce ten sposób nie ma praktycznie znaczenia (nie został on włączony do oferty przez największe polskie OPP).

Na stronach polskich organizacji bardzo rzadko pojawia się informacja o możliwości przekazania środków SMS-em, natomiast w przypadku amerykańskich organizacji jest to częstsze. Podobieństwo polskich i amerykańskich organizacji sprowadza się w zasadzie do przelewów bankowych. Nawet w odniesieniu do Facebooka widoczne są różnice. Co ciekawe, informacja i możliwość wejścia przez stronę WWW organizacji na Facebooka w celu przekazania datku występuje na wielu polskich stronach – w amerykańskich nie jest to popularne. Nie oznacza to, iż w USA nie można przekazać datku z poziomu Facebooka, ale połączenia z witryną WWW nie ma. Za to w USA cały czas popularne są czeki (prawie co trzecia organizacja informuje lub posiada wydzieloną zakładkę odnośnie tego sposobu przekazywania środków finansowych) oraz e-czeki, a w największych polskich organizacjach płacenie czekiem praktycznie nie występuje.

Podsumowanie

Generalnie największe amerykańskie organizacje non profit stwarzają więcej możliwości przekazywania środków pieniężnych na ich rzecz z poziomu witryny WWW niż ich polskie odpowiedniki. Dotyczy to zarówno liczby oferowanych sposobów, jak i liczby organizacji wykorzystujących określone mechanizmy. Fakt ten może być inspiracją dla zarządzających polskimi organizacjami non profit (lub osób odpowiedzialnych za PR) odnośnie możliwości wprowadzania analogicznych lub

[3] Niniejszy artykuł ogranicza się do donacji w formie pieniężnej, a kryptowaluty nie są środkami uznawanymi za prawny środek płatniczy. Niemniej jednak posiadają one zdolność anonimowego dokonywania płatności i ponadnarodowego transferu środków, dlatego też zdecydowano się je włączyć do analiz.

podobnych do amerykańskich rozwiązań na własnych stronach internetowych. Przy tym amerykańskie organizacje częściej wykorzystują najnowsze zdobycze techniki, jak choćby kryptowaluty. Spowodowane jest to prawdopodobnie różnicami ekonomicznymi i kulturowymi występującymi na obu rynkach. Z pewnością uwarunkowania społeczno-ekonomiczne, jak i kulturowe powodują jeszcze większe różnice w odniesieniu do wszystkich sposobów pozyskiwania wsparcia – nie tylko tych ograniczających się do środków finansowych (np. przekazywanie akcji i pozostałych papierów wartościowych, nieruchomości i innych aktywów). Niniejszy artykuł ogranicza się jednak jedynie do analizy sposobów pozyskiwania środków pieniężnych, co jest pierwszym ograniczeniem prezentowanych badań (w przyszłości należałoby rozszerzyć badania o wszystkie sposoby wspierania organizacji non profit, bowiem zidentyfikowane różnice mogą okazać się o wiele większe). Dodatkowym ograniczeniem jest brak analizy skuteczności poszczególnych narzędzi (zidentyfikowanie częstotliwości wykorzystywania proponowanych rozwiązań przez darczyńców) oraz ustalenie, od czego to wykorzystanie zależy (np. od konkretnych cech darczyńców, pozycjonowania strony internetowej, przedmiotu działalności w przypadku organizacji-darczyńcy). Kolejnym ograniczeniem prezentowanych badań jest fakt zdiagnozowania tylko największych amerykańskich i polskich organizacji. Badania na reprezentatywnej próbie organizacji o różnych rozmiarach dałoby zapewne pełniejszy obraz sytuacji. Ponadto w celu pogłębionego diagnozowania rozmaitych sposobów wspierania organizacji non profit należy rozszerzyć zakres badań. Badania prezentowane w niniejszym artykule ograniczają się bowiem jedynie do analizy stron internetowych organizacji. Kolejne badania powinny objąć również media społecznościowe – da to pełniejszy obraz faktycznej aktywności organizacji non profit w pozyskiwaniu środków od darczyńców.

Niemniej jednak strony internetowe poszczególnych organizacji non profit wciąż są bardzo ważnym elementem ich aktywności. Stanowią one coś na kształt wizytówki organizacji. Wielu darczyńców tylko po wizycie na jej stronie internetowej może zostać przekonanych (bądź zniechęconych) do przekazania środków na rzecz danej organizacji.

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METHODS OF ACQUIRING MONETARY DONATIONS THROUGH WEBSITES – A COMPARATIVE ANALYSIS OF AMERICAN AND POLISH NONPROFIT ORGANIZATIONS

Abstract: Nonprofit organizations often rely on individual donors. Depending on the country and the socio-economic conditions prevailing there, they should offer various ways of transferring funds. It should therefore be assumed that different transfer mechanisms may be used in different countries. Therefore, the aim of the research presented in this paper is to identify ways of acquiring monetary donations offered by the surveyed nonprofit organizations through websites. As part of the study, the websites of the 100 largest Polish and American nonprofit organizations in terms of revenue were analyzed. In the case of the USA, these organizations were classified as 501(c)(3), while in the case of Poland – public benefit organizations (PBO). As a result of the research, it was found that American organizations provide potential donors with more opportunities to transfer funds. In addition, the research has shown that the ways used by nonprofits to transfer funds differ in both analyzed countries.

Keywords: donation, philanthropy, nonprofit organization

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GROWTH STRATEGIES OF ECONOMIC GROUP: CONSERVAS LA COSTEÑA

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Abstract: In Mexico, in the food and beverage sector, the participation of various economic groups or large companies does not escape an oligopolistic reality. The present work presents the case of an economic group or large company Conservas la Costeña, which was founded 100 years ago. The aim of the study was to analyze the growth strategies used by the La Costeña Group to consolidate itself in the food and beverage industry. The methodology was descriptive, historical and analytical; The information was collected from secondary sources by consulting both the database of the "Mundo Ejecutivo" and "Expansión" magazines and the company's website. The results indicate that the strategies used for business growth were self-financing, geographic expansion, diversification of products and brands, acquisitions, alliances and technological innovations in plants and distribution centers that have led the economic group in the area of canned goods and preserves to position itself successfully in the national market and participate in the international market in the era of globalization.

Keywords: business growth, economic groups, strategies

JEL Classification: L00, L20, O4

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Introduction: The food industry in Mexico

In the era of market globalization, companies are expected to integrate internationally so that the exchange of goods can take place in countries and societies on the planet. The electronics, information technology and telecommunications sectors have generated technological innovations known as the third industrial revolution, which have lightened productive tasks. Large companies or economic groups are not oblivious to these transformations and for this reason they promote internationalization processes in their growth objectives.

In Mexico, internationalization is visible, on the one hand, in the transnational companies that operate in the country, on the other, the internationalization of companies whose origin is national capital and have strategically positioned themselves in other countries in order to achieve growth and expansion, objectives that most companies had not considered before the crisis of the 1980s in Mexico.

Foreign and national capital companies participatein dynamic competition, while some stand out for being leaders in the particular activity they develop. Among the strategies of the economic groups of the industry, diversification, improvement of product lines, adding markets geographically, economies of scale, research and technological development stand out (Rendón & Morales, 2008).

Entering into processes of economic integration on a global scale implies carrying out economic strategies linked to technological and organizational advances; the companies that participate in the food and beverage industry which have managed to stand out are those that are part of the leading sector of agribusiness . However, in their evolution they considered moving from regional to national and international spaces.

The National Statistical Directory of Economic Units (DENUE) registered 217,477 economic units in the food industry, a branch of the manufacturing industry (DENUE, 2022); many of these companies seek to satisfy domestic demand, and in some cases within the framework of globalization, export to other countries; Those who achieve it are considered successful companies, such as Grupo Industrial Maseca, Empresa La Moderna, Grupo Industrial Bimbo, Conservas La Costeña and others (Chauvet & González, 2001).

Among the classification of the manufacturing industry, the food industry that registers the production of economic units dedicated to the preparation, preservation and packaging of food products for human and animal consumption is identified and is classified as follows: 1) food processing for animals, 2) milling of grains and seeds and obtaining oils and fats, 3) production of sugars, chocolates, sweets and the like, 4) preservation of fruits, vegetables, stews and other prepared foods, 5) production of dairy products, 6) slaughter, packaging and processing of meat from cattle, poultry and other edible animals, 7) preparation and packaging of fish and shellfish, 8) preparation of bakery products and tortillas, and 9) other food industries, dedicated to the preparation of snacks, coffee, tea, concentrates, powders, syrups, and flavor essences for beverages, as well as condiments and seasonings, the beverage, tobacco, and other food industries (INEGI, 2018).

The manufacturing industry contributed 18.5% to the gross domestic product (GDP). For its part, the food industry in the third quarter of 2022 registered a GDP of $5.51 trillion Mexican pesos with an employed population of 2.04 million people, 49.1% men and 50.9% women (DENUE, 2022). 2,067 companies dedicated to the preservation of fruits, vegetables, stews and other prepared foods participate, including Conservas La Costeña (INEGI, 2022).

Research methodology

The aim of the research was to identify the growth strategies implemented by Grupo La Costeña to consolidate itself in the food and beverage industry.

The study is of a documentary type; the following approaches were used: historical-critical analytical through a dynamic approach. Two approaches were used: 1) of historical origin, which gives greater importance to the historical beginnings and the conditions of irruption to establish the definitive configuration, the outstanding political and economic practices and the development patterns of the companies (Concheiro et al., 1979); and 2) corporate and organizational strategies, which address the changing organizational structure of large modern corporations and their tendency to adopt more complex management structures and corporate morphologies (Cordero et al., 1983).

Since not all companies share information on their organization to the public, there is only an obligation to share it with the Tax Administration Service (SAT), and only those listed on the stock markets must report their corporate governance. The collected information comes from secondary sources; by reviewing the published results of previous investigations, the records prepared by the Expansión Magazine of the annual sales of the 500 most important companies in Mexico, the Forbes and Mundo Ejecutivo magazines, the website of La Costeña Group.

Historical background

Studies of large companies or economic groups date back to the 1960s in the United States of America. Alfred Chandler is the best-known author for proposing, according to his work, the business structure and strategies that guaranteed their economic efficiency, strategies that also turned them into oligopolies in their markets as he also explains in his work La Mano Visible (1977). Nonetheless, although the growth process of economic groups that historically became international, it is really thanks to world changes that modern large global companies evolved and developed (Marichal, 2003).

The study of Mexican companies dates from the 1990s when the application of successful business strategies of the companies that survived the crisis of the eighties was registered, such as the restructuring of their debts, the reengineering of their businesses, the sale of companies, disinvestments and above all their outward growth, the ability to acquire new technologies through partners and alliances.

After the Spanish conquest, the natives' way of trading changed and the street markets were replaced by buildings designed to be used as markets, as well as a more uniform way of presenting merchandise. Urban planning arose, determining that the center of the city would house the civil, religious and military powers; merchants were no exception to take advantage of the influx of people and thus establish their commercial spaces.

In the post-revolutionary period, the State was concerned about market failures, and formed a network of institutions that made it possible to guarantee the supply of food; for this reason markets were established and integrated and regional consumption intervened in production, marketing and consumption.

It is precisely because of the inability of the market to provide agricultural goods at affordable prices to the urban consumer that policies arose, through which price control guaranteed consumption to the least favored with the creation of a national market. Subsequently, from the 1960s to the 1980s, the State incorporated subsidies for some foods as goods-salaries, whose support depended on the sale of oil, foreign loans and fiscal deficit. A protected economy model was established, retail trade was established around a central wholesale market based in urban areas (Torres, 2009).

It was determined that the cities were the places where the food supply was organized, under demand models that considered the growth of the population and the spaces that were dynamic and underwent transformations. The product of the evolution of elements such as the intermediation between production regions, distribution channels and consumption spaces was a food supply pattern, which went from the traditional to the modern in order to meet segmented and differentiated demands. However, tradition and modernity survive or coexist, based on consumer habits and resistance to change (Fisher & Espejo, 2011).

Changes in commerce went hand in hand with the neoliberal economic model that allowed the presence of large international companies: a diversity of companies was established and store formats were created that sought greater proximity to the consumer, under the law of minimum effort displacement and based on income distribution (Torres, 2011).

The companies of the food industry constitute the elementary economic units of the capitalist system because they configure the production of material goods that seek to satisfy the needs of society. The clients that make up the main demand of these large industrial companies are precisely the supermarkets and wholesale stores that present the products to the final consumer. Large companies or economic groups have implemented growth strategies such as geographic expansion, technology and robotization, diversification of lines and products with their own brands, acquisitions, and strategic alliances in order to meet the demand and maintain their leadership in the market.

History and growth of the company: La Costeña

The La Costeña group was founded as a family business in 1923; it began making by hand canned serrano and long chili peppers in vinegar, packaged in plastic bags and sold in a grocery store called La Costeña. Based on the success in sales, the family decided to dedicate themselves to canning industrially (Mundo Ejecutivo, 2018). They added to their sales products such as olives, olive oil and chipotle peppers. They introduced a volume bidding system in a captive market of sundries, cream shops, and grocery stores in the La Merced area of Mexico City (Mundo Ejecutivo, 1999).

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The history and growth of La Costeña records investments in plants and technological innovations. Between 1937-1948 Don Vicente López Rosines (the owner of La Costeña) undertook the task of manufacturing his own cans and inaugurated his first production plant located in Mexico City. Between 1951-1971 his products were sold throughout the country, thanks to the fact that in 1951 he installed the first automatic line for the manufacture of 3 kg cans, and in 1955 those of 105 kg, as well as added distribution systems. By 1971 he had founded the first production plant located in the municipality of Ecatepec, the State of Mexico. In 1975 he ventured into the North American market with the first exports of chiles and salsas, serving the Hispanic market with these goods.

In 1981 he launched tomato puree, vinegar in 1983, Mexican sauce in 1984, ketchup in 1992, and other products such as homemade charro, refried, and whole beans (Mundo Ejecutivo, 1999).

Between 1986-1991 La Costeña replaced lead-welded containers with electrostatically sealed ones in order to protect the environment. Another production plant was inaugurated in Guasave, Sinaloa, where the company ventured into the production of tomato and vegetable puree lines. In 1994 the group introduced a line of beans in various preparations and later the inclusion of more product lines and brands.

Between 1997-2003, it added value to its packaging and canning with the easy-open system, one of the pioneers of this method. In June 1997 the comany started operating a new production plant in San Luis Potosí. At the plant in Guasave, Sinaloa, La Costeña introduced the aseptic packaging system of the Swiss company Combibloc, which eliminates microorganisms through ultra-pasteurization in cardboard containers. This company also supplies Lala, Jumex, Nestlé and Boing. In the year 2000, the group launched the Doña Chonita line of sauces for cooking.

In 2006, it began the construction of an automated warehouse that allowed it to have better storage and automatically restock traditional racks.

Between 2007-2008 La Costeña inaugurated an automated distribution center, considered one of the largest in Latin America due to its capacity, magnitude and number of operations. Between 2011-2013 the company started operating a second automated distribution center. In 2014 the Mexican Institute of Industrial Property granted it the declaration of “Famous Trademark” (La Costeña, 2023).

La Costeña, based on vertical integration and investment in state-of-the-art technology, has an automatic cutting line that is continuously updated and processes the raw material in its facilities; With three plants, La Costeña produces four million containers per day, its production lines have the capacity to produce up to 6,500 cans and 3,200 caps per minute in each production line, thanks to high-speed presses.

Its automated and modern warehouses allow food to be fresh, even if it is not in season; its two storage and distribution centers have a capacity of 43,000 and 63,000 pallets, respectively. It possesses 30 distribution warehouses in the Mexican Republic.

In 2011-2013, it inaugurated the third plant in San Luis Potosí and the second automated center. In 2017, it expanded its San Luis Potosí plant by 30% with the intention of achieving a greater production of chiles, nopales, moles and tamales, the demand for which has grown in Mexico and internationally (Expansión, 2017).

Diversity of production of goods and services

La Costeña produces between 1,200 and 1,300 tons of jalapeño peppers per day in high season (June-August) and is a leader in the production of chili peppers and vinegar. La Costeña has formed a portfolio of products that allows it to maximize its resources and of course reduce costs, especially since they manufacture many of their inputs, such as cans for packaging, for which they manufacture approximately 3.5 million cans per day, vinegar, and others (Sandoval, 2023). La Costeña has 12 lines that make up 122 products and two brands: Chonita and Rancherita as observed in Tables 1 and 2.

Innovation constitutes a challenge in commercial competition and for this reason large companies intend to manufacture new products and meet the demand of consumers who always expect innovations in consumer society. Among the factors that impact innovation are patents, brands, and the impact on organizations; in this sense Conservas La Costeña has created its own brands.

Table 1. Conservas La Costeña product lines

Chilies	Beans	Specialties
Rodajas de Jalapeño Rojo Tatemados Rodajas de Jalapeño Tatemados Jalapeños Enteros Jalapeños Picados Nachos de Jalapeños Rajas de Jalapeños Rajas Rojas de Jalapeño Toreados Rodajas de Jalapeños Serranos Enteros Serranos Rodajas Toreados Serranos Toreados Rodajas de Serranos Chipotles Adobados Chipotles Picados Chipotles Adobados en Trocitos Chipotles Dulces en Trocitos Zanahorias en Escabeche Habaneros Enteros en Escabeche Rajas de Habanero en Escabeche Zanahorias Ralladas con habanero en Escabeche	Frijoles Negros Enteros Frijoles Negros Refritos Frijoles Negros refritos con Chipotle Frijoles Negros Refritos Reducidos en Sodio y Sin Grasa Frijoles Negros Molidos Frijoles Negros Colados Frijoles Bayos Enteros Frijoles Bayos Refritos Frijoles Bayos Refritos con Chipotle Frijoles Bayos Refritos con Chicharrón Frijoles Bayos Refritos con Queso y Chipotle Frijoles Bayos Refritos con Chorizo Frijoles Charros Frijoles Ranch Frijoles Peruanos Refritos	Esquites Aceitunas con Hueso Aceitunas Rellenas de Pimiento Aceitunas Sin Hueso Mole Rojo Mole Verde Mole con Chocolate Mole Almendrado Huitlacoche Salsa para Pizza Caldillo de Tomate Verde Totopos Hummus clásico Hummus con Chipotle Ensalada de Lentejas con Vegetales Ensalada de Lentejas con Quinoa Ensalada de Lentejas con Chorizo Chilorio Mole con Pollo Cochinita Pibil
Puree and Ketchup	**Mayonnaise and dressings**	**Vinegar**
Pasta de Tomate Puré de Tomate con Chipotle Puré de tomate con Jalapeño Puré de Tomate Puré de Tomate Condimentado Puré de Tomate Machacado Puré de Tomate Sazonado Salsa Cátsup Salsa de Tomate para Aderezar	Mayonesa con Jugo de Limón Mayonesa con Jugo de Limón Reducida en Grasa Aderezo de Mayonesa Aderezo Light de Mayonesa Mayonesa con Chile Chipotle Aderezo de Mayonesa con Chiles Jalapeños	Vinagre blanco de alcohol de Caña Vinagre de Manzana Vinagre de Color de Alcohol de Caña

Vegetables	Pozole	Sauces
Elote Dorado Chícharos Maíz Blanco Chícharos y Zanahorias Ensalada de Verduras Ensalada Campesina Pimiento Morrón en Tiras Garbanzos Ensalada de Garbanzo a la mexicana Ensalada de Garbanzo Campestre	Pozole Blanco Pozole Rojo	Salsa Casera con Chipotle Salsa de Chile Chipotle Salsa de Guacamole Salsa Casera con Habanero Tatemada Salsa Ranchera Tatemada Salsa Verde con Nopales Tatemada Salsa Casera Mexicana Tatemada Salsa Arriera Tatemada Salsa Verde Salsa Roja Taquera Tatemada
Sweets	**Fruit**	**Tamales**
Miel de Abeja Ate de Guayaba Ate de Membrillo Ate de Membrillo sabor Chamoy Puré de Manzana Mermelada de Fresa Mermelada de Piña Mermelada de Zarzamora Mermelada de Chabacano Mermelada de Frutos Rojos	Chabacanos en Almíbar Mitades Duraznos en Conserva Cubitos Duraznos en Almíbar Rebanadas Duraznos en Almíbar Cubitos Duraznps en Conserva Mitades Duraznos en Almíbar Mitades Duraznos en Almíbar Enteros Piña en Almíbar Rebanadas Piña en Almíbar Trocitos Guayabas en Almíbar Enteras Peras en Almíbar Mitades Mango en Almíbar Rebanadas Coctel de Frutas en Almíbar	Tamal Verde Tamal de Elote Tamal Dulce Tamal Rojo

Source: Authors' own elaboration based on La Costeña (2023)

Table 2. Conservas La Costeña Group brands

Brands	Products
Doña Chonita	Salsa para Chilaquiles Rojos, Salsa para Chilaquiles Verdes, Salsa para Pambazos, Salsa de Chile Pasilla, Salsa de Chile Guajillo, Caldillo de Tomate Verde, Adobo, Pipián, Caldillo de Jitomate, Salsa de Chile Chipotle, Mole Verde, Mole Rojo, Salsa para Cochinita Pibil
Rancherita	Frijoles Peruanos Refritos, Frijoles Bayos Refritos, Frijoles Negros Refritos, Frijoles Bayos Enteros

Source: Authors' own elaboration based on La Costeña (2023)

Acquisitions and competition

Among its elements of expansion, the company has been concerned with establishing alliances and acquisitions with competing and complementary companies, as well as reinvestments. Vertical integration from production to sales is a success factor (Maldonado et al., 2020). Its constant investments in technological innovation and product diversification go hand in hand; therefore, with each acquired company, the number of products increases, thus taking advantage of the consolidation of the brands, selling products that have already penetrated the market.

Sabormex's growth shows that its strategies led it to establishing a successful company: it was founded in August 1964 as the firm Cafés de Veracruz, a coffee roasting and trading company, and ventured into a product called Café Legal. In 1970 the company introduced Café Oro to the market. In 1982 Sabormex established the first brand of processed beans under the La Sierra brand. In 1995 they launched the first sports drink Enerplex (Sabormex, 2023) on the national market.

Clemente Jacques, a company with a more than 130-year history and a pioneer in canning in Latin America (1887), is registered in its jurisdiction. However, it was acquired by Sabormex in 2002, purchased from Unilever, which produces a similar portfolio of products: ketchup, dressings, vinegar, sauces, chilies, vegetables, fruits, jams, and croutons. Unilever is a company that offers over a thousand brands on the global market. In Mexico, in 1990, it bought the food division of Grupo Visa, which included the brands Walter, Little Red Riding Hood, Mafer, and above all, Clemente Jacques (Expansión, 2011).

Table 3. Lines of Clemente Jacques products

<table>
<tr><th>Ketchup</th><th>Dressings</th><th>Chilies</th></tr>
<tr><td>Catsup Clemente Jacques
Catsup Squeeze
Catsup con Habanero
Catsup con Jalapeño
Catsup Clemente Jacques 4 kg.
Catsup Clemente Jacques 3 kg.</td><td>Aderezo Sabor Italiano
Aderezo Sabor César
Aderezo Sabor Mil Islas
Aderezo Sabor Ranch
Aderezo Diosa Verde
Aderezo Diosa Azteca
Aderezo Gourmet Sabor Casero
Aderezo Gourmet Sabor Soya Limón
Aderezo Gourmet Sabor Mostaza Miel
Aderezo Gourmet Sabor Cilantro
Aderezo Gourmet Mango Habanero
Aderezo Gourmet Sabor Vinagreta Balsámica</td><td>Chiles Molidos:
Chiles Chipotles Molidos
Chiles Chipotles Dulces Molidos
Chiles Habaneros Molidos
Chiles Jalapeños Molidos

Chiles:
Chiles Chipotles
Chiles Jalapeños
Nachos de Chiles Jalapeños
Rajas de Chiles Jalapeños
Chiles Chipotles Gourmet
Chiles Habaneros Gourmet</td></tr>
<tr><th>Fruit</th><th>Jams</th><th>Croutons</th></tr>
<tr><td>Coctel de Frutas
Piña en Trozos
Piña en Rebanadas
Piña en Rebanadas (Reducido en azúcar)
Duraznos en Trozos
Duraznos en Rebanadas
Duraznos en Mitades</td><td>Mermelada de Fresa
Mermelada de Chabacano
Mermelada de Zarzamora
Mermelada de Frambuesa</td><td>Crutones Sabor Queso y Ajo
Crutones Sabor Ranch
Crutones Sabor Italiano
Crutones Sabor César.</td></tr>
</table>

Vegetables	Sauces	Vinegar
Chicharos con Zanahoria Elotes Ensalada de Verduras Chícharos	Salsa Parrillera Salsa Casera Salsa Verde Salsa Taquera Salsa Habanero Tatemado. ***Guacamole sauces:*** Salsa de guacamole con Chile Habanero Salsa de guacamole con Chile Serrano Salsa de guacamole con Jugo de Limón	Vinagre de Manzana Vinagre Blanco

Source: Authors' own elaboration based on Clemente Jacques (2023)

Nevertheless, that same year Sabormex was acquired by Grupo La Costeña, in such a way that the competitors joined. Hence, the acquisition of Sabormex constituted an important growth strategy; by acquiring a company whose development made it a competitor of Conservas La Costeña, led to eliminating the competition. The variety of La Costeña products grew exponentially since its portfolio increased; the diversification of products and brands covered a greater market demand thanks to this acquisition. Table 4 presents the new products.

Table 4. Sabormex brands and products

La Sierra	Briannas/Home Style Vinaigrettes	Café Legal
Frijoles Mayocoba Refritos Frijoles Negros Refritos Frijoles Bayos con Chipotle Frijoles Refritos Claros Frijoles Bayos sin grasa Frijoles Bayos refritos Frijoles Peruanos Refritos Frijoles Bayos Refritos con Chorizo Frijol Flor de Mayo Enfrijoladas Salsa de Frijol Bayo Frijol Peruano Grano Frijoles Molidos Claros Frijoles Molidos negros Frijoles Ranch Enteros Chilaquiles Rojos Chilaquiles verdes Chicharrón en salsa verde Frijoles Bayo entero Frijoles Negros Entero Frijol Negro Grano Frijol Pinto Grano Frijoles Bayos Refritos con Chipotle Frijoles Negros Refritos Frijoles Charros **Marca Mi Reina**	Vinagreta de ajo Asiago César Vinagreta Balsámica de Arándanos Vinagreta de Vino Rubor Vinagreta Italiana Vinagreta Francesa Real Vinagreta Estilo Champán Semilla de Amapola de Frambuesa Semilla de Amapola Rica Crema de Cilantro y Lima Balsámico Cremoso Americano Rancho Clásico de Suero de Leche Mostaza de Miel Dijon Queso Azul Cremoso Sugar Free Poppy Seed Sugar Free Blush Wine Vinaigrette **Briannas/Crutones** Crutones de Parmesano y Finas Hierbas Crutones con Sabor a Miel y Mostaza Crutones de Cebolla Dulce	Café de Grano Café Soluble Descafeinado Café Soluble Mezclado con Caramelo **Café Mexicano** Café Mexicano Descafeinado Café Mexicano Gourmet **Café Internacional** Café Internacional Americano Café Internacional Descafeinado **Café Oro** Café Esférico Café Oro 24 Kilates Café Liofilizado Café Oro Diamante Café Aglomerado Café Oro Regular Café Aglomerado Descafeinado Café Oro Descafeinado Café Soluble 100% Puro **Café y Tierra Garat** Regulares Descafeinado Espressos Luxury Sabores

Briannas/Marinated vinaigrettes	Briannas/Organic vinaigrettes	Briannas/of avocado oil
Cítricos Mediterráneo Chipotle Ahumado y lima Filete Clásico Ajo Asado y Hierbas Sriracha Miel Jengibre	Vinagreta de Sidra de manzana orgánica Vinagreta de mango ecológico Vinagreta de miel y Jengibre Ecológica Semilla de amapola rica orgánica Vinagreta francesa auténtica orgánica Vinagreta de vino rubor sin azúcar	Cesar de aceite de aguacate Rancho de jardín sin lácteos con aceite de aguacate Vinagreta de hierbas con aceite de aguacate Vinagreta balsámica clásica de aceite de aguacate

Source: Authors' own elaboration based on (Sabormex, 2023)

In 2006 Sabormex bought the extra-fine coffee brand Internacional and in 2009 it incorporated Café Garat into the portfolio and in 2013 Café Mexicano was acquired. In 2020, the company created the Mi Reina brand, which offers products such as tortillas, tortilla chips, and tostadas. In 2017, it made its first international acquisition by buying the North American company Briannas, an expert in gourmet dressings.

In 2012 Conservas La Costeña acquired Fritos Totis botanas (Aguilar, 2023); this Mexican company enjoys the demand for a product whose tradition dates back to the consumption of products derived from corn. It was founded in Tizayuca, Hidalgo in 1987, and among its assets it has three plants (two in Tizayuca, the State of Mexico and one in Comitán, Chiapas). In 2019 the company acquired Galletas Marian and Cacahuates Nipon in order to diversify its portfolio (Rodríguez, 2019).

Subsidiaries

La Costeña products have crossed borders by being exported and by the taste and acceptance of Mexican food. The Conservas La Costeña Group bought Sun Vista in the United States in 2000. In 2000-2001 it opened its first offices in China.

In 2010, it acquired Aconcagua, a fruit company, whose history dates back to 1897, leaders and peers in the production and marketing of canned foods in Chile (Aconcagua Foods, 2023). In 2011 it acquired a plant in Tucson, Arizona. Thus, Arizona Canning is a subsidiary of La Costeña.

La Costeña has been collaborating since 2012 with the company Reckitt Benckiser as a complementary business for its line of products with its French's seasonings and Frank's sauces. The products that were added are the sauces: Frank's RedHot Xtra Hot, Frank's RedHot Sweet Chili, Franks's RedHot Slammin Sriracha and French's BBQ Clásica and BBQ Chipotle (Castillejos, 2016).

In 2014, it acquired the Minnesota-based grocery and canned vegetable company Faribault Foods, at the time with about 750 employees in its plants located in Cokato and Elk River. It joined the chain of packers and distributors in order to continue growing and expanding its products, including its presence in the bean market on the territory of North American (El Minnesota de Hoy, 2014).

Australia was coordinated from China, which is why in 2015 they opened offices in that country to also serve the New Zealand market. In 2016, the new market expansion was the United Arab Emirates and for this reason the company opened an office in Dubai (Sanchez, 2016). That same year, the first office in Europe was set up in Barcelona, Spain to cover the European market, although the pioneers in that market were companies from the southern United States with Tex-Mex (Lucena, 2016). In 2017 it entered Asian markets such as China and Japan and Indonesia. Depending on the size of the market, they choose how to operate; the company does not open offices in all countries, for example, in Israel and Italy they have a distributor (Hernández, 2023).

In 2017, it acquired the United States canned food company Del Sol Food, purchased through its subsidiary Sabormex and with it its brand of Briannas Fine Salad Dressings. With this acquisition, it entered the market for gourmet products in that country, whose portfolio includes SW Beans and Luck's beans, SunVista canned legumes and vegetables, and Kerns nectars and juices (Expansión, 2017). It has a production center in Brenham Texas, and with this it increased its portfolio where the canning companies Faribault Foods, Arizona Canning Company and the distributor Vilore Foods are registered (Quiminet, 2017).

In 2018, 85% of La Costeña's sales still came from Mexico, and the other 15%, from exports (Expansión, 2018). In 2019, among the 100 global Mexican companies identified by Expansión as multinationals that focused on new markets, Conservas La Costeña, positioned in three countries, achieved 14.9% of its sales (Expansión, 2020). In 2020, in the face of the pandemic, companies that did not depend on a single market cushioned the low sales abroad faced by the 100 global Mexican companies; their revenues fell by 1% compared to the 13.7% drop suffered in the national market. Conservas La Costeña achieved 25% of its income abroad (Lara et al., 2021).

In 2023, upon celebrating the 100th year of its foundation, Conservas La Costeña reports that 25% of its production is consigned to the export market, 18% is reserved for the US market and 7% is destined for the rest of the world. In total, its products are sold in 77 countries, but it affirms that the origin and base of the company is Mexico (Sandoval, 2023).

Financing

Since the 1970s, many industrial economic groups have been interested in belonging to the Mexican Stock Exchange (BMV) in search of economic resources that would allow them to grow, including Alfa, Cifra, Visa, Vitro, Desc, Aurrera (Salas, 1992). However, from the beginning, Conservas La Costeña opted for its own resources, especially since in 1980 the State stopped prioritizing its support for agriculture, an activity strongly linked to the food industry. In the canning sector, its counterpart, the Herdez Group, did not escape this reality. In 1990, the Herdez Group entered the BMV. La Costeña does not have bank debts, but they do not rule out corporate governance in the future (Sánchez, 2016).

The company plans to build a new plant in 2024 with a large investment to strengthen and diversify the company on land near the Ecatepec plant. It also plans to enter the Qatar market and two or three other countries in South America.

Business and entrepreneurs are two sides of the same coin. Expansión magazine compiled a ranking of the 100 most important businessmen in Mexico. To prepare the list, the magazine made an estimate based on the shareholding (40%), sales (35%), profits (10%), employees (10%) and participation in the Mexican Stock Exchange (5%). Vicente López Rodea, president of the Board of Directors of Conservas La Costeña and Sabormex, is considered in the list, who went through a 6-level variation from position 88 in 2020 to 82 in 2021. The importance of this ranking shows the accumulated wealth of businessmen despite the upcoming pandemic; together they add up to 220,000 million dollars and are 44% above 2020 (Expansión, 2021).

Figure 1 presents the sales revenue of Conservas La Costeña in the period from 2010 to 2020, which shows a general growing behavior, with a growth of 135.22% in 10 years and with an average annual growth of 8.97%. The following statistics stand out: the highest level of annual growth was observed in 2016, where it was at 12.5%, while for 2018 the lowest was only 2.61%.

Despite the general upward trend of sales, two major moments were observed in the period: 1) from 2016 to 2018, contraction in the annual growth variation derived from increased competition and decreased demand; and 2) from 2018 to 2020, recovery, going from 2.61% to 11.42% as a result of the group's entry into new regional markets: the United Arab Emirates, China, Japan and Indonesia in Asia and Spain in Europe.

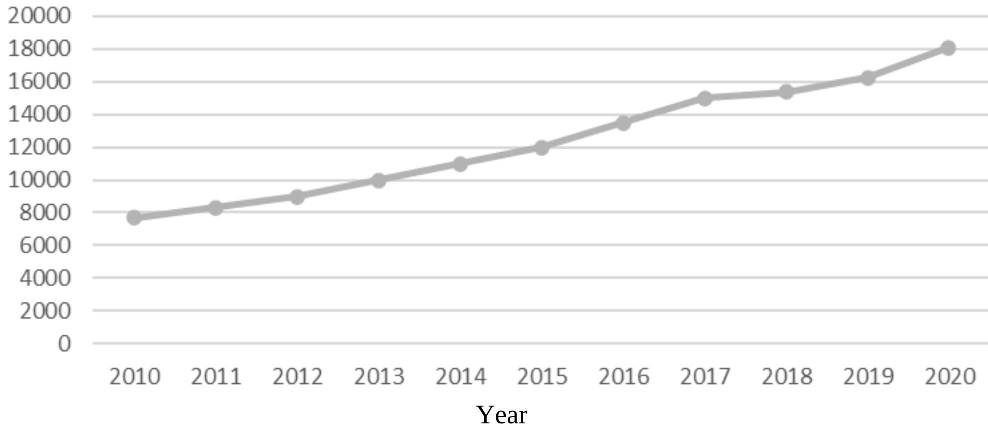

Figure 1. Sales of La Costeña in 2010-2020 (millions of pesos)

Source: Authors' own elaboration based on annual reports of Expansión magazine

In 2020, the introduction of the standard for labeling with icons warning of high levels of sodium, fat, sugar and others, coincided with the peak production season and the COVID-19 outbreak and challenges faced by the company to adjust to these changes. Further complications are a consequence of the war between Russia and Ukraine that raised the prices of raw materials such as packaging; steel that rose more than 100%, and farm inputs such as jalapeño peppers that became 30 to 35% more expensive, causing inflationary pressures (Pérez, 2022).

The growth in sales of Conservas La Costeña has doubled in the study period, with new investments in plants, acquisitions of Mexican and foreign companies, warehouses and implemented technological innovations, which have allowed the group to improve the quality of its containers and canned goods as well as introduce new product lines and brands for their consumers.

Conclusions

La Costeña is an economic group that has been a leader in the food and beverage industry and has existed in the market for 100 years. Its consolidation is the result of the execution of growth and expansion strategies that have allowed it to stand out in a competitive environment.

It has transformed its production line to diversify in response to the demands of the food market in such a way that it ensures its presence in the industry by manufacturing products to the taste of consumers in its country of origin and adapting its products to the tastes of international consumer brands.

Its long journey to consolidate its presence in the market has required the establishment of alliances and acquisitions with its main competitor companies, which allowed it to ensure technological innovation in its production plants and distribution centers in addition to the diversification of products through expansion of the offer.

In its search to achieve its presence in new markets, it acquired canning companies in the United States, China, Chile, Australia, New Zealand, the United Arab Emirates, Spain, Japan and Indonesia, Israel and Italy, and intends to reach the South American market. Despite allocating a quarter of its production abroad, its highest proportion of sales revenue comes from its presence in the Mexican market.

Derived from the constant growth in its sales revenue, the Group has not required financing strategies via debt or capital, through the financial market, but only from the reinvestment of profits and capital contributions to the company's equity.

Recommendations

In the characterization of the development of capitalism in Mexico, the study of economic history is required to identify the behavior of economic groups as a superior category of large companies, to identify their evolution, based on the execution of differentiated strategies according to the economic sector in which they are located and in accordance with the national economic situation. The analysis of the La Costeña Group allows a deductive and critical review of the behavior of the said economic sector by focusing on the approach of the growth strategies of an industrial group.

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STRATEGIE ROZWOJU GRUPY GOSPODARCZEJ: CONSERVAS LA COSTEÑA

Streszczenie: W Meksyku, w sektorze żywności i napojów, działalność różnych grup gospodarczych lub dużych firm nie unika oligopolistycznej rzeczywistości. Niniejszy artykuł ukazuje przypadek grupy gospodarczej lub dużej firmy Conservas la Costeña ze 100-letnią historią. Celem badania była analiza strategii wzrostu stosowanych przez grupę La Costeña w celu konsolidacji w branży spożywczej. Metodologia ma charakter opisowy, historyczny i analityczny. Informacje zostały zebrane ze źródeł wtórnych, z uwzględnieniem przeglądu zarówno bazy danych magazynów „Mundo Ejecutivo" i „Expansión", jak i strony internetowej firmy. Wyniki wskazują, że strategiami zastosowanymi do rozwoju biznesu były samofinansowanie, ekspansja geograficzna, dywersyfikacja produktów i marek, przejęcia, alianse i innowacje technologiczne w zakładach i centrach dystrybucyjnych, które doprowadziły do powstania grupy ekonomicznej w branży konserw i przetworów, tak aby skutecznie pozycjonować się na rynku krajowym i uczestniczyć w rynku międzynarodowym w dobie globalizacji.

Słowa kluczowe: rozwój biznesu, grupy ekonomiczne, strategie

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PODEJŚCIE PROCESOWE I DOJRZAŁOŚĆ PROCESOWA W PODMIOTACH LECZNICZYCH W KONTEKŚCIE SIECI SZPITALI

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Streszczenie: Zarządzanie procesowe jest wyzwaniem w jednostkach ochrony zdrowia, choć procesy nie są obce podmiotom leczniczym. Proces co do zasady jest dobrze udokumentowany dzięki prowadzeniu dokumentacji medycznej, jednak istnieje duża zmienność w jego realizacji ze względu na stan pacjenta. Co więcej, mimo powodzenia procesu, jego wynik może być odmienny od założonego. Mimo wystandaryzowanych ram udzielania świadczeń profesjonalista medyczny posiada dużą autonomię w zakresie postępowania z pacjentem, co powoduje trudności w mapowaniu procesów. Oprócz trudności wewnątrz podmiotu leczniczego również jego otoczenie wpływa na specyfikę zarządzania. Celem artykułu jest przedstawienie wyników badań dotyczących dojrzałości procesowej w polskich szpitalach w kontekście przynależności do poziomu referencyjności (sieć szpitali), posiadanych certyfikatów jakości (ISO oraz akredytacja) i osiągania zysku lub straty.

Słowa kluczowe: dojrzałość procesowa, jakość, ochrona zdrowia, procesy

Kod klasyfikacji JEL: H13, D47, D60, H40, I11

Wprowadzenie

Sektor ochrony zdrowia boryka się z wieloma przeciwnościami i zasady prowadzenia działalności są silnie uzależnione od polityki oraz finansowania publicznego. Każdego dnia w podmiocie leczniczym zachodzi szereg procesów – są to procesy medyczne, informacyjne, zarządcze, informatyczne, komunikacyjne itp. Procesy te znacząco różnią się od siebie, a ich powtarzalność jest zależna od problematyki

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przyjmowanych pacjentów oraz specyfiki podmiotu leczniczego. Procesy zachodzące w jednej komórce organizacyjnej mogą znacząco się od siebie różnić, a ostateczną decyzję o przebiegu leczenia podejmuje lekarz. Proces medyczny jest udokumentowany każdorazowo w postaci dokumentacji medycznej, jednak cel owej dokumentacji wynika jedynie z potrzeb medycznych i prawnych. Rzadko analizuje się na tej podstawie przebieg i powtarzalność procesów. Z jednej strony jest doskonale udokumentowany proces (również informatycznie), jednak jego analiza służy głównie ocenie stanu pacjenta i rozliczeniu z narodowym płatnikiem. Aktualnie, za sprawą informatyzacji i elektronicznej dokumentacji medycznej, istniałaby możliwość analizy procesu. Niestety taka analiza wciąż należy do rzadkości, co – jak wskazuje literatura – jest złą drogą. Aktualnie tradycyjne systemy Hospital Information System (HIS) nie umożliwiają analiz przebiegu procesu na podstawie danych (Szelągowski, 2015). Dojrzałość procesów powinna przekładać się na sprawniejsze zarządzanie podmiotem oraz mieć swój wkład w efektywność. W Polsce ochrona zdrowia przechodzi od reformy do reformy – warto zadać sobie pytania dotyczące pozycji podmiotu leczniczego w świetle dojrzałości procesowej i jego oceny w systemie. Artykuł ma na celu identyfikację kluczowych czynników wpływających na dojrzałość procesową oraz zbadanie powiązań między jakością, pozycją szpitala po reformie tzw. sieci szpitali oraz dojrzałością procesową. Przeprowadzone badania empiryczne pozwalają wyciągnąć wnioski co do zależności dojrzałości procesowej i kwalifikacji do sieci, a tym samym po raz pierwszy porównać, czy aspekt dojrzałości procesowej jest skorelowany z umiejscowieniem szpitali w sieci.

Szpital jako podmiot leczniczy

Szpital to według definicji ustawowej zakład leczniczy, w którym podmiot leczniczy zajmuje się wykonywaniem działalności w rodzaju świadczenia szpitalnego, gdzie jako świadczenia szpitalne rozumie się kompleksowe świadczenia zdrowotne wykonywane przez całą dobę, obejmujące diagnozowanie, leczenie, pielęgnację i rehabilitację, których charakter wyklucza możliwość ich realizacji w innych podmiotach stacjonarnych, całodobowych lub ambulatoryjnych. W ramach świadczeń szpitalnych wykonywać można również świadczenia z zamiarem zakończenia ich udzielania w trakcie 24 godzin (Ustawa z dnia 15 kwietnia 2011 r. …). Witczak (2009) definiuje szpital jako zakład opieki zdrowotnej, w którym udzielane są świadczenia pacjentom wymagającym całodobowego świadczenia opieki zdrowotnej – jest to uporządkowany system działań powołany, by realizować cele przy wykorzystaniu zasobów, ma własną strukturę i działa według ustalonych reguł. Szpital jest bez wątpienia podmiotem leczniczym. „Podmiot leczniczy" jest pojęciem szerszym, ponieważ obejmuje przedsiębiorców, samodzielne publiczne zakłady opieki zdrowotnej, jednostki budżetowe mające w swej działalności ambulatoria, instytuty badawcze, fundacje oraz stowarzyszenia, ambulatoria z izbą chorych, instytucje POZ (lekarza, pielęgniarkę i położną), osoby prawne i jednostki Kościoła katolickiego oraz wojskowe zajmujące się działalnością leczniczą (Ustawa z dnia 15 kwietnia 2011 r. …). Określenie podmiotu leczniczego obejmuje więc szeroką gamę jednostek zarejestrowanych w Rejestrze Podmiotów Wykonujących Działalność Leczniczą (https://rpwdl.ezdrowie.gov.pl/). Na koniec 2021 roku w Polsce funkcjonowało

899 szpitali ogólnych i 219 dziennych, co przekłada się na 168,8 tys. łóżek i 5,8 tys. miejsc dziennych. Na 100 tys. mieszkańców przypada 2,9 szpitala, a w województwie śląskim aż 4,3 (GUS, 2022). W budżecie NFZ zapisanym na rok 2023 na szpitalnictwo zaplanowano blisko 50% wydatków (https://www.nfz.gov.pl/…). Szpitale pełnią funkcję zabezpieczenia potrzeb zdrowotnych populacji – ich podstawowym celem jest ratowanie życia i przywracanie zdrowia pacjentom. Szpitale zwykle są placówkami publicznymi, co powoduje ich znaczne upolitycznienie, a także nierynkowe działanie (szpitale często utrzymują nierentowne oddziały celem zapewnienia populacji dostępu do opieki zdrowotnej), co odbija się bezpośrednio na ich finansach. Według raportu dotyczącego sytuacji szpitali powiatowych aż 90,5% z nich przyniosło w 2022 roku stratę, co wskazuje na złą sytuację zarówno szpitali, jak i całego sektora. Niestety szpitalnictwo od dawna przynosi straty, co z kolei wymogło szereg reform skrajnie od siebie różnych – zaczynając od komercjalizacji nierentownych szpitali (Kachniarz, 2008), po sieć szpitali, która funkcjonuje do dziś.

Sieć szpitali

Reformę szpitalnictwa, zwanego siecią szpitali, wprowadzono w 2017 roku jako odpowiedź na problemy sektora. Szpitale nie tylko miały problemy finansowe i organizacyjne, ale również musiały między sobą rywalizować w procedurze konkursu ofert, przez co występował brak ciągłości, niepewność otrzymania kontraktu, fragmentaryzacja procesów oraz brak skupienia na potrzebach pacjenta (Jarosz-Żukowska, 2020). Reforma podzieliła szpitale na te, które funkcjonują w sieci, oraz te poza nią. Do szpitali w sieci zalicza się szpitale I stopnia, szpitale II stopnia i szpitale III stopnia oraz szpitale onkologiczne, pulmonologiczne, pediatryczne i ogólnopolskie (Hellich & Wierzowiecka, 2017). Szpitale do sieci były kwalifikowane według warunków w Rozporządzeniu Ministra Zdrowia z dnia 13 czerwca 2017 r. w sprawie szczegółowych kryteriów kwalifikacji świadczeniodawców do poszczególnych poziomów systemu podstawowego szpitalnego zabezpieczenia świadczeń opieki zdrowotnej. W teorii sieci szpitali szpitale I stopnia to szpitale podstawowe zapewniające świadczenia niezbędne dla populacji, nieudzielające świadczeń wysokospecjalistycznych – najczęściej do tej grupy kwalifikowano szpitale powiatowe. Szpitale II stopnia to szpitale wieloprofilowe wykonujące bardziej rozbudowane procedury, z większą liczbą oddziałów; ten poziom to zwykle szpitale wojewódzkie. Ostatni poziom trzystopniowego zabezpieczenia pełnią szpitale III stopnia (instytuty, szpitale kliniczne, część szpitali wojewódzkich); wykonują one skomplikowane procedury z wykorzystaniem najnowocześniejszych technologii. Kwalifikacja do sieci jest rewidowana co 4 lata i ostatnie zmiany w rankingu miały miejsce we wrześniu 2022 roku. Sieć szpitali w swoich założeniach miała za zadanie zapewnienie odpowiedniego poziomu finansowania, gwarancję bezpieczeństwa dla systemu opieki zdrowotnej, ciągłości i poprawienia dostępności do opieki zdrowotnej i finansowania, optymalizację liczby oddziałów specjalistycznych i kosztów leczenia, zwiększenie elastyczności zarządzania szpitalem oraz powstanie poradni przyszpitalnych mających za zadanie skoordynowanie dwóch poziomów leczenia (leczenia szpitalnego

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i świadczeń ambulatoryjnych) (Łęgowski, 2017). Zmienił się również system finansowania, sieć szpitali oznaczała odejście od płacenia za usługi, a szpitale zaczęły otrzymywać ryczałt określony przez NFZ zgodnie z rozporządzeniem MZ (Rozporządzenie Ministra Zdrowia z dnia 22 września 2017 r. …).

Jakość certyfikowana w podmiocie leczniczym

Jakość usług bywa oceniana subiektywnie w zależności od posiadanej przez oceniającego wiedzy, zapotrzebowania i doświadczenia. W ocenie jakości ważna jest też sytuacja sektora, dostęp do informacji oraz świadomość, jak usługa powinna być wykonana, i samych wymagań klienta (Bielawa, 2011). Ocena jakości usług medycznych z jednej strony to duża dysproporcja między wiedzą profesjonalisty medycznego a świadomością i oczekiwaniami pacjenta; dodatkowo obie strony w swoich ocenach mogą być nieobiektywne (Raczyńska, 2020). Konieczna jest więc pewna obiektywizacja oceny jakości w placówkach ochrony zdrowia. W Ministerstwie Zdrowia trwają prace nad uregulowaniem oceny jakości, jednak na obecną chwilę obowiązuje system weryfikacji na poziomie kontraktowania (ocena wykształcenia, umiejętności i kompetencji personelu czy użytkowany sprzęt), a także zewnętrzne oceny poprzez certyfikację ISO i/lub akredytację (Trela, 2014). Akredytacja CMJ jest najbardziej pożądanym przez szpitale certyfikatem jakości, ponieważ bezpośrednio wpływa na ryczałt poprzez współczynnik korygujący (Rozporządzenie Ministra Zdrowia z dnia 22 września 2017 r. …). Certyfikat akredytacyjny nadaje Centrum Monitorowania Jakości w Ochronie Zdrowia, a szereg wytycznych do spełnienia określa w Zestawie Standardów Akredytacyjnych osobno dedykowanych szpitalom (CMJ, 2009) i podstawowej opiece zdrowotnej. W ramach standardów ocenianych uwzględnia się ciągłość opieki, przestrzeganie praw pacjenta, ocenę jego stanu i opiekę nad nim. Kontrolę zakażeń, zabiegi i znieczulenia, farmakoterapię, laboratorium, diagnostykę obrazową, żywienie, poprawę jakości i bezpieczeństwa pacjenta, zarządzanie oraz zarządzanie zasobami ludzkimi, zarządzanie informacją, zarządzanie środowiskiem opieki (CMJ, 2009). Warto wskazać, że akredytacja jest dedykowana systemowi ochrony zdrowia, natomiast normy ISO skierowane są do wszystkich sektorów gospodarki, a zadaniem podmiotu wdrażającego jest implementacja normy. NFZ wyróżnił pięć norm, których posiadanie jest gratyfikowane wprocedurze konkursowej, tj. ISO 9001 – certyfikat zarządzania jakością, ISO 14001 – certyfikat systemu zarządzania środowiskowego, ISO 27001 – certyfikat systemu zarządzania bezpieczeństwem informacji, ISO 18001 – certyfikat systemu zarządzania bezpieczeństwem i higieną pracy oraz ISO 22000 – certyfikat systemu zarządzania bezpieczeństwem żywności (Raczyńska, 2020).

Podejście procesowe w jednostkach ochrony zdrowia

Podejście procesowe, zwane również orientacją procesową, jest uważane za pewną ideę zarządzania procesami w organizacji, stanowi filozofię, gdzie istotą zainteresowania pracowników i zarządzających jest proces oraz klient, co sprzyja udynamicznieniu organizacji, jej elastyczności, gotowości do zmiany oraz holistycznemu ujęciu przedsiębiorstwa (Nowosielski, 2008). Sam proces jest pewnym zestawem działań i czynności realizowanych sekwencyjnie, o określonych, zdefiniowanych wejściach, które zmierzają do założonego rezultatu, są one uporządkowane w czasie i przestrzeni (Bitkowska, 2013). Wyznacznikiem wdrażania podejścia procesowego w jednostce ochrony zdrowia są holistyczne podejście do problemów jednostki, koncepcja związków przyczynowo-skutkowych, zintegrowane zarządzanie ryzykiem, zaangażowanie personelu, monitorowanie procesu na każdym jego etapie, wiedza jako bardzo ważny czynnik wpływający na proces, wsparcie informatyczne i dobra komunikacja wewnątrz organizacji (Szwiec, 2017). Podejście procesowe skupia się na kliencie, w przypadku jednostki ochrony zdrowia jest to pacjent. Bez uwzględnienia jego punktu widzenia w kwestiach organizacyjnych, współtworzenia procesów podejście procesowe nie może być prawidłowo zaimplementowane w organizacji (Ludwiczak, 2017). Bardzo ważne jest również uwzględnienie w strategii szpitala podejścia procesowego jako dobrej praktyki dla tworzenia procedur organizacyjnych. Niezwykle istotne jest mapowanie procesów, co pozwala na analizę działalności podmiotu leczniczego. Tworząc modelowanie procesów w szpitalu, uwzględnia się diagramy procesów wewnętrznych, procesów publicznych, diagram kolaboracji, choreografii i konwersacji (Dziembała & Pańkowska, 2017). Z sukcesem podejmuje się próby zmapowania procesu od wejścia do wyjścia z jednostki ochrony zdrowia (Graban, 2011), jednak nigdy nie jest to pełna wariacja dotycząca procesów, a próby dokładnej charakterystyki wszystkich procesów oraz ich wariacji nie przynoszą szpitalowi wartości (Cleven et al., 2014). Identyfikacja procesów powinna się skupiać na drogach pacjenta z pozostawieniem swobody ich modyfikacji z powodów medycznych (Raczyńska, 2022). Warto przy tym uwzględnić ograniczenia obserwacji procesu spowodowane przepisami prawnymi i etyką (wykluczenie obecności osób trzecich czy nagrywanie procesu) (Mleczko, 2012).

Dojrzałość procesowa

Dojrzałość procesowa zakłada pewien punkt odniesienia do stopnia wdrożenia podejścia procesowego, które może być wskaźnikiem pozwalającym zmierzyć jej poziom w organizacji (Sliż, 2016). Dojrzałość procesowa wyraża się zakresem, w jakim procesy podlegają formalnemu zdefiniowaniu, zarządzaniu, mierzeniu i jak bardzo są efektywne (Grajewski, 2016). Za cechy organizacji dojrzałej procesowo uznaje się jej zdolność do usprawniania produktu/usługi, pełne identyfikowanie procesów oraz umiejętność przekazywania wiedzy o nich, planowanie projektowania procesów, obserwację procesów, usprawnianie i eksperymentowanie oraz analizę stosunku kosztu do efektu, jasny podział ról i odpowiedzialności, monitorowanie jakości produktów i zadowolenia klientów, stworzenie obiektywnej bazy do oceny jakości działań (Grela, 2013). Większa dojrzałość procesowa poprawia wyniki organizacji, zwiększa jej rentowność, rotację kapitału, zysk oraz innowacyjność (Brajer-Marczak, 2017). Ochrona zdrowia jako system znajduje się na różnych etapach dojrzałości również administracyjnie – tak więc w celu poprawy dojrzałości procesowej warto przyjrzeć się modelom systemu ochrony zdrowia i wsparcia podmiotów

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(Carvalho et al., 2016). Przyjmuje się, że w jednostkach ochrony zdrowia przebiega wiele procesów. Standardy postępowania, w tym procedury medyczne są nauczane już w czasie studiów medycznych i specjalizacji – skomplikowanie procedur wymaga specjalistycznej i rozbudowanej wieloletniej wiedzy. Również sposób rozliczania usług przez NFZ polega na realizacji procedur. W badaniach Kaltenbrunner i in. (2018) podkreślona jest dojrzałość procesowa na poziomie podstawowej opieki zdrowotnej. Wśród autorów polskich warto wskazać prace Kalinowskiego (2012, 2014, 2015, 2017) i Brajer-Marczak (2014, 2017, 2018, 2019) dotyczące dojrzałości procesowej i nakreślające problemy jednostek, w tym z sektora ochrony zdrowia. Badane są również same wdrożenia zarządzania procesowego przez takich autorów jak Bitkowska (2013), Nowosielski (2008), Nogalski et al. (2013).

Metodologia badań, charakterystyka grupy badawczej i hipotezy badawcze

Badania przeprowadzono od października 2022 roku do lutego 2023 roku metodą ankiety wspomaganej telefonicznie w grupie szpitali (dobór losowy), uzyskując 100 pełnych ankiet (liczba przebadanych szpitali 100). Niniejsze wyniki zostały opracowane na bazie danych będących podstawą do obrony pracy doktorskiej autorki artykułu. Skala pomiarowa dojrzałości procesowej została zaczerpnięta z *Process Management in Hospitals: An Empirically Grounded Maturity Model* autorstwa Cleven, Wintera, Wortmanna, Mettlera (Cleven et al., 2014). Narzędzie zostało przetłumaczone i dopasowane do polskich warunków. Respondenci udzielali odpowiedzi w 7-stopniowej skali Likerta. Co ważne, badanie odbyło się po nowej klasyfikacji do sieci szpitali. Respondentami byli samodzielni specjaliści niemedyczni, kierownicy komórek organizacyjnych (medycznych i niemedycznych). W badaniu brały udział szpitale z sieci i spoza sieci, gdzie szpitale I-III stopnia stanowiły aż 77% próby badawczej. W badaniu pewną nadreprezentację miały szpitale posiadające akredytację, ponieważ aż 94% badanych posiadało certyfikat akredytacyjny, gdzie w populacji tylko 171 szpitali na dzień 31.12.2022 r. było pozytywnie zakredytowanych. 73% badanych szpitali posiadało certyfikat jakości ISO 9001, 18% ISO 14001, 22% ISO 27001, ISO 18001 29%, a ISO 2200 4%. W 2021 roku 53% badanych szpitali osiągnęło zysk, a 47% stratę. Konstrukt dotyczący dojrzałości procesowej obejmował 21 pytań dotyczących takich aspektów jak strategia, praca zespołowa, system informatyczny, przebieg procesów, podejmowanie decyzji, inicjatywy pracowników, regulacje prawne, hierarchia i komunikacja. W ramach procesu badawczego opracowano następujące hipotezy badawcze:

H1. Umiejscowienie szpitala w sieci odzwierciedla poziom dojrzałości procesowej.

H2. Istnieje zależność między osiąganiem zysku a straty a poziomem dojrzałości procesowej.

H3. Istnieje zależność między akredytacją a poziomem dojrzałości procesowej.

H4. Istnieje zależność między posiadanym certyfikatem ISO a poziomem dojrzałości procesowej.

Wyniki badań i weryfikacja hipotez

W celu weryfikacji hipotez badawczych analiza przebiegła na podstawie współczynnika korelacji Pearsona służącego do przedstawienia powiązań liniowych między dwoma zmiennymi (Ścibor-Rylski, 2013). Zastosowanie korelacji Pearsona jest uznaną metodą statystyczną ukazującą związek między zmiennymi. Przedstawione w artykule wyniki badań są pierwszym opracowaniem pozyskanych danych, a dalsze wyniki zostaną przedstawione w późniejszym okresie. Obliczenia dokonano dla trzech przypadków: dla całej bazy szpitali, dla szpitali z sieci i tylko dla szpitali I, II i III stopnia. Średnia dla poziomu dojrzałości wynosi 71%, co wskazuje na dość wysoką ocenę dojrzałości w szpitalach, a odchylenie standardowe wynosi 9%.

Hipoteza pierwsza została oparta na założeniu, że im wyższa pozycja w sieci, tym wyższy poziom dojrzałości procesowej. Z założeń sieci szpitali wynika, że im wyżej szpital został sklasyfikowany, tym jest bardziej specjalistyczny, realizuje więcej procedur i procedury są bardziej skomplikowane. W związku z tym naturalnie szpitale w sieci powinny być bardziej dojrzałe procesowo niż te poza siecią, a im lepsza pozycja, tym większy poziom dojrzałości procesowej. Korelacja Pearsona powinna być znacząca. Wyniki korelacji zamieszczono w Tabeli 1. Na podstawie opracowanych danych hipotezę H1 należy odrzucić. Współczynnik korelacji mówi o słabym związku między dojrzałością procesową a umiejscowieniem w sieci.

Tabela 1. Współczynnik korelacji, dojrzałość procesowa a umiejscowienie w sieci szpitali

Rodzaj szpitali	Współczynnik korelacji
Szpitale – cała populacja	0,051
Tylko szpitale w sieci	0,020
Tylko szpitale I, II i II stopnia	0,130

Źródło: Opracowanie własne na podstawie wyników badań

Hipoteza druga dotyczyła zależności dojrzałości procesowej i osiągania zysku/straty. Z badań literaturowych wynika, że dojrzałość procesowa powinna wpływać zarówno na efektywność, jak i poziom zysku w organizacji. Z przeprowadzonej analizy wynika, że istnieje słabe powiązanie między dojrzałością procesową a osiąganiem przez podmiot straty/zysku w badanej grupie szpitali. W Tabeli 2 zobrazowano zależność między dojrzałością procesową a zyskiem/stratą szpitala.

Tabela 2. Współczynnik korelacji, dojrzałość procesowa a zysk/starta szpitali

Rodzaj szpitali	Współczynnik korelacji
Szpitale – cała populacja	0,150
Tylko szpitale w sieci	0,140
Tylko szpitale I, II i II stopnia	0,120

Źródło: Opracowanie własne na podstawie wyników badań

Akredytacja CMJ jest jedynym dedykowanym tylko sektorowi ochrony zdrowia, głównie szpitalom, certyfikatem jakości uznawanym przez Narodowy Fundusz Zdrowia. Podejście procesowe w literaturze jest silnie powiązane z jakością, w związku z tym hipoteza trzecia wydaje się naturalnym wnioskiem, jednak w badanej populacji związek między dojrzałością procesową a akredytacją jest słaby. W Tabeli 3 zobrazowano współczynnik korelacji dla hipotezy trzeciej, na tej podstawie odrzucono hipotezę nr 3.

Tabela 3. Współczynnik korelacji, dojrzałość procesowa a akredytacja

Rodzaj szpitali	Współczynnik korelacji
Szpitale – cała populacja	0,080
Tylko szpitale w sieci	0,130
Tylko szpitale I, II i II stopnia	0,130

Źródło: Opracowanie własne na podstawie wyników badań

Tabela 4. Współczynnik korelacji, dojrzałość procesowa a liczba certyfikatów ISO

Rodzaj szpitali	Współczynnik korelacji
Szpitale – cała populacja	0,060
Tylko szpitale w sieci	0,120
Tylko szpitale I, II i II stopnia	0,060

Źródło: Opracowanie własne na podstawie wyników badań

Tabela 5. Współczynnik korelacji, dojrzałość procesowa a posiadane certyfikaty ISO

Rodzaj szpitali	ISO	Współczynnik korelacji
Szpitale – cała populacja	ISO 9001	0,080
	ISO 14001	0,040
	ISO 27001	0,150
	ISO 18001	0,060
	ISO 22000	0,800
Tylko szpitale w sieci	ISO 9001	0,040
	ISO 14001	0,010
	ISO 27001	0,220
	ISO 18001	0,100
	ISO 22000	0,080
Tylko szpitale I, II i II stopnia	ISO 9001	0,040
	ISO 14001	0,010
	ISO 27001	0,170
	ISO 18001	0,100
	ISO 22000	0,150

Źródło: Opracowanie własne na podstawie wyników badań

Hipoteza nr 4, podobnie jak hipoteza nr 3, oparta była na wniosku z przeglądu literatury dotyczącym podejścia procesowego i jakości. Najpierw ustalono liczbę posiadanych certyfikatów i na tej podstawie dokonano oceny współczynnika korelacji (Tabela 4). Podobnie jak w przykładzie akredytacji zachodzi tu słaby związek, jednak jest on jeszcze niższy, powiedzieć można, że wręcz przypadkowy. Dokonano więc obliczeń dla poszczególnych certyfikatów i również stwierdzono słabą korelację. Jedynym certyfikatem wyróżniającym się na tym tle był certyfikat ISO 27001 dotyczący zarządzania bezpieczeństwem informacji, jednak związek nadal jest słaby. Wyróżnienie się ISO 27001 może być spowodowane silną presją dotyczącą informatyzacji podmiotów leczniczych i ich wysokim niebezpieczeństwem (opór, socjotechniki, cyberbezpieczeństwo), choć wciąż określa się związek między dojrzałością procesową a posiadaniem certyfikatu ISO 27001 jako słaby (Tabela 5). Hipoteza nr 4 na podstawie obliczeń została odrzucona.

Kierunki dalszych badań i dyskusja

Przeprowadzone badania pozwalają odrzucić wszystkie hipotezy badawcze. Wynik badań jest niepokojący z punktu widzenia systemu. Brak korelacji między poziomem dojrzałości procesowej a umiejscowieniem w sieci lub uzyskanymi certyfikatami jakości. Podmioty określają średnio swoją dojrzałość na 70%, co w świetle przeprowadzonych na potrzeby artykułu analiz prezentuje wysoką wartość. Prowadzone badanie zostało poprzedzone pilotażem mającym miejsce w 2021 roku. Po przeprowadzeniu pilotażu dokonano zmian w narzędziu badawczym mających za zadanie ułatwić odpowiadającym zrozumienie pytania. Po analizie wyników badania właściwego część wyników może być zawyżona w przypadku wybranych pytań, np. na pytanie: „proces (również medyczny) jest udokumentowany" 54% respondentów odpowiedziało „zdecydowanie tak", 36% „tak", 10% „raczej tak". Średnia kształtowała się tu na poziomie 6,44, a mediana 7 „zdecydowanie tak". Respondenci mogli to pytanie zrozumieć jako pytanie o tworzenie dokumentacji medycznej lub postępowanie zgodnie z procedurami medycznymi. Dobór próby był losowy, jednak w grupie ankietowanych placówek jest znacząco więcej szpitali akredytowanych, niż wynikałoby to z populacji. Badania warto pogłębić o badania jakościowe, co byłoby uzupełnieniem wiedzy uzyskanej w ramach badań ilościowych. Ciekawym ujęciem tematu byłaby również analiza różnic w szpitalach w poszczególnych województwach.

Podsumowanie

Sektor ochrony zdrowia jest specyficzną, bardzo upolitycznioną, borykającą się z kryzysami gałęzią gospodarki. Szpitale przechodziły trudną drogę reform, jednak żadna z nich nie przyniosła oczekiwanych skutków. Stopień zadłużenia szpitalnictwa w Polsce powinien pobudzać do głębokiej dyskusji celem ewolucyjnej poprawy, a nie kolejnej rewolucji. Jednym z elementów zwiększenia efektywności może być podejście procesowe. W artykule przedstawiono cztery hipotezy dotyczące związku między dojrzałością procesową a pozycją szpitala i jej podejściem do jakości. Niestety wszystkie cztery hipotezy zostały odrzucone. W badanej populacji nie ma związku między dojrzałością procesową a umiejscowieniem w sieci szpitali, osiąganym zyskiem lub stratą, a także nie mają związku posiadane certyfikaty jakości, jak akredytacja CMJ, czy posiadane certyfikaty ISO. Bez wątpienia powinno się dążyć do zwiększenia dojrzałości procesowej szpitali i uwzględnić przy tym poziom wiedzy personelu na temat zarządzania procesami. Na chwilę obecną, na podstawie badań, w analizowanej populacji nie stwierdzono związku między dojrzałością a pytaniami charakteryzującymi podmiot.

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PROCESS MANAGEMENT AND PROCESS MATURITY IN HEALTHCARE UNITS IN THE CONTEXT OF HOSPITAL NETWORKS

Abstract: Process management is a challenge in healthcare units, although processes in healthcare are natural. The process is generally well documented due to medical records, but there is a high variability in its implementation due to the patient's condition. What is more, despite the success of the process, its result may be different from the assumed one. Despite the standardized framework for providing services, a medical professional has a lot of autonomy in dealing with the patient, which causes difficulties in mapping processes. This article discusses the subject of process management in healthcare, the issue of process maturity in healthcare companies, quality certification in healthcare, the rules of the hospital network (Polish hospitals' reform from 2017 to nowadays), and presents the results of research on process maturity conducted in Polish hospitals at the end of 2022 in the context of a hospital network, having quality certificates and making a profit.

Keywords: healthcare, process management, process maturity, quality

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DEVELOPMENT OF NEW PRODUCTS – ALTERNATIVE FOR ENTREPRENEURSHIP

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Abstract: In processing companies, one of the problems they face is the final use of the waste generated by raw materials. For this reason, finding processing options for its use which at the same time generate income is an alternative for the management of new businesses. In Mexico, 33% of entrepreneurs seek to solve problems in the market or society, diversifying their source of income and expanding their creativity. The objective of this research is to develop new products from the industrial waste of shrimp and mango peels. The collection of information focused on the review of literature reports and reports from sources such as the Agro-Food and Fisheries Information Service (SIAP), the National Institute of Statistics and Geography (INEGI), the Council for Economic Development of Sinaloa (CODESIN), the Ministry of Economy, among others; contemplating the development of new products and entrepreneurship as an object of study. According to the diagnosis made by CODESIN, the areas with the greatest opportunity in the short term (1 to 3 years) to develop new products or, therefore, businesses in the bioeconomy area are processed foods, biofertilizers, and nutraceuticals. In conclusion, the development of a new product, such as shrimp and mango sauce, is an option for engineering and design, representing an area of opportunity for the operation of new businesses.

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Introduction

Innovation-based ventures consist of generating different and useful proposals for the market that become the main drivers for generating change processes that improve productivity, break paradigms, and generate growth through the creation of new companies that produce new jobs and activate the flow of the country's capital.

The development of new products in companies is influenced by the purchase decision and the competition that is generated. Furthermore, it is considered a crucial process for the survival of businesses, especially small businesses.

Shrimp waste (shell and head) is an important source of protein, lipids, minerals, chitin, and pigments. These components can be implemented in different areas, mainly in the food and pharmaceutical industry, as they can be substitutes for chemicals that are harmful to health. In addition, the reuse of these products is sought, adding them high value.

The peels of different mango varieties contain high-quality pectin (Sudhakar & Maini, 2000; Schieber et al., 2004), 4.8% crude protein, 29% soluble dietary fiber, and 27% insoluble dietary fiber (García 2003), and a significant concentration of polyphenols and antioxidant compounds (Schieber et al., 2003; Ajila et al., 2007; Ajila et al., 2008).

The objective of this research is to develop new products for entrepreneurs from the industrial waste of shrimp and mango peels.

Literature review

Development of new products

The development of new products in companies is influenced by the purchase decision and the competition that is generated. Furthermore, it is considered a crucial process for the survival of businesses, especially small businesses. For this reason, Ferris (2016) proposes that public and interpersonal relations with other companies or with high-level executives allow opening that gap between what is current and what will be presented as something innovative in the near future. On the other hand, it suggests not overestimating the competition since with a clear focus and business direction, companies can be better than they think. Therefore, for the author, physical or virtual social networks allow contact with important people who have achieved success, and apparently, it appears as one of the first steps to validate with the approval of external experts the development of new products.

For an innovation to have real value, it must necessarily be related to marketing; in other words, an essential element of innovation is its successful commercial application (Lafuente, 2010).

Regardless of its production process, administrative procedure, organizational change, or the result of new goods and services on the market, in its different versions, innovation is important for economic and social dynamics. Today, innovation is not an exclusive topic of the economic or business field, the benefits derived from it impact the quality of life of people and require placing it as a priority issue in any government agenda (Rojo et al., 2018).

For Jerome McCarthy, marketing is the completion of those activities that are intended to meet the goals of an organization, by anticipating the requirements of the consumer or client and by channeling a flow of merchandise suitable for the needs and services that the producer provides to the customer, consumer, or client (Sierra, 2012).

From marketing, development starts from research and tries to settle all the issues that imply the failure of the product in its launch or commercialization. According to studies surveyed by Philip Kotler, the proportion of failures among industrial products reaches 30% (Berggren & Nacher, 2000).

Ulrich and Eppinger (2004) also analyze the design process from the perspective of marketing and agree on its properties: mediating interactions between company and customers, facilitating the identification of product opportunities, defining market segments, identifying needs, and supervising the results, prices, launches, and promotion of the product.

Marketing acts on the administration of the company's merchandise in order to make the results of the processes involved more profitable; where, in turn, it must consider changes in consumer interests, technological advances, and proposals from the competition, among other factors (Sierra, 2012).

Faced with these variants, companies count among their best renewal options, with the possibility of launching new products. They can be acquired in two ways: through the acquisition (of a company, patent or license to produce a product); or through the development of new products (Sierra, 2012).

Entrepreneurship

For Hernandez et al. (2018), entrepreneurship is not only taking into account the contributions it makes to the community as a determining factor for economic development and social and structural change, but also as a driving force that stimulates the acquisition of knowledge, change technology, competitiveness, and innovation. The same author mentions that the entrepreneurial sense becomes a requirement strongly felt by institutions committed to the need for an effective combination of public policies and private investments (both in terms of profits and non-profit organizations), capable of relaunching a new “entrepreneurial society”.

Innovation-based ventures consist in generating different and useful proposals for the market that become the main drivers for generating change processes that improve productivity, break paradigms, and generate growth through the creation of new companies producing new jobs, and activating the flow of the country's capital.

In Mexico, 33% of entrepreneurs seek to solve a problem in the market or society by diversifying their source of income and expanding their creativity, as well as being an important element in the development of the economy, which ultimately serves as new opportunities to activate the Mexican economy (Jamexico, 2020).

Therefore, it seems necessary to implement measures to promote the creation of new companies in order to develop new opportunities offered by technological, market and socioeconomic changes and thus succeed in replacing companies that are no longer efficient and productive (Herruzo-Gómez et al., 2019).

In this sense, business models can enhance this entrepreneurial culture. There are many definitions of business models where the authors agree that it is the way to negotiate with the client in order to generate income.

According to Osterwalder and Pigneur (2010), a business model is the reason for which an organization creates, captures, and delivers value both in the economic and social context and is considered a fundamental part of the strategy (Determining factors of innovation).

On the other hand, Ricart (2009) mentions that a business model consists of the set of choices made by the company and the set of consequences that derive from the said choices.

Use of shrimp and mango waste

There is a wide variety of crustaceans, and, among these, shrimp stands out as the most important from an economic point of view, due to its wide distribution along the coasts and its use in various dishes in Mexico. However, it has been reported that around 48-60% of the total shrimp weight corresponds to the inedible fraction, which comprises the exoskeleton, head, and tail. Generally, these parts are considered and managed as waste; however, they have significant amounts of proteins, lipids, chitin, and carotenoids, such as astaxanthin (Pattanaik et al., 2020), for which shrimp waste can be a source of high value-added compounds (Mao et al., 2017). However, in Mexico, its industrial exploitation is still in its infancy. An example of this wastage is that of the 75,000 tons that were produced in 2021, only 22,500 tons are shells, which are not used at all and end up being discarded when they can have different uses, not only for food for people but also for food for animals. One of the main problems of the seafood processing industries is the final disposal of the waste generated from the various types of crustaceans. Therefore, finding an application for this waste that, in addition to resolving the final disposal of by-products, generates economic income is one of the best options for the shrimp industry. In general, the yield of by-products, when the shrimp is in shell-on-tail form, oscillates between 35 and 45% of the total weight of the shrimp. Furthermore, the use of this material contributes to solving the environmental problem generated by the slow degradation of this waste (Velasco et al., 2019).

In Mexico, agricultural waste (peels, bones, bagasse, damaged fruits and vegetables or fruits and vegetables with maturity and quality problems) represents an environmental problem since there are no adequate policies for their management, and most of the time they are thrown into landfills. They represent contamination problems due to the lack of adequate management of these wastes, mainly the shell (which constitutes 7 to 24% depending on the cultivar) and the seed and pulp residues (Sumaya et al., 2012; Flores et al., 2013; Barreto et al., 2017). In the case of mango, it has been pointed out that the peels of different varieties contain high-quality pectin (Sudhakar & Maini, 2000; Schieber et al., 2004) as well as dietary fiber with an excellent balance between soluble and insoluble fiber (Larrauri et al., 1996).

This waste is generated in large volumes (32-50%) and only a minimal part is reused in the production of low value-added animal feed (Sumaya et al., 2012). Additionally, there are losses of fresh fruit (30-50%) associated with post-harvest handling and problems in its commercialization (Jiménez et al., 2022).

Research methodology

The study is of a qualitative nature, which Barrantes (2014) points out is also called naturalist-humanist or interpretive, whose interest "focuses on the study of the meanings of human actions and social life". It implies an approximation to reality based on the study of situations in the same contexts where they operate, studying people and companies. As Taylor and Bogdan (1984) indicate, it is about resorting to a research methodology that allows one to understand the complex world of lived experience from the point of view of those who live it. It has a descriptive scope, considering that it refers to a level of depth that implies having a good base of prior knowledge about the topic and phenomenon of study since it seeks to carry out phenomenological or constructivist narrative research, which describes the subjective representations that emerge in a human group on a certain phenomenon, specifying characteristics and profiles of people, groups, companies, communities, or any other phenomenon that is subjected to analysis (Hernández, 2018). The collection of information focused on the review of literature reports and reports from sources such as the Agro-Food and Fisheries Information Service (SIAP), the National Institute of Statistics and Geography (INEGI), the Council for Economic Development of Sinaloa (CODESIN), the Ministry of Economy, among others; contemplating the development of new products and entrepreneurship as an object of study, since documentary techniques consist of the identification, collection, and analysis of documents related to the fact or context studied. Furthermore, the analysis of a formula for sauce preparation was carried out considering raw materials obtained from shrimp and mango waste. In this case, the information was obtained through written, graphic, and published works from reliable sources.

Results

The creation of a company constitutes an engine of growth and development that allows the transformation of unstable economic scenarios into competitive ones. However, not all business plans become successful and position themselves in a sustained manner in the market, a situation that implies that the entrepreneur introduces innovative strategies supported by the development of new products and new companies, aimed at generating a source of employment and offering an added value.

Given the new scenarios that the labor market is going through, the modality of entrepreneurship is spreading increasingly through the creation of small companies for regional economic development. For this reason, the number of people who seek to start an organization through a business model that allows them to self-employ and generate jobs is increasing, adding to the economic growth and development of the entity where the business initiative is developed.

The development of food products based on shrimp and mango waste represents an opportunity for the creation of new companies to process and market them at the regional, state and national level. Furthermore, the commercialization of these products can economically benefit farmers and fish farmers, since what they consider waste and that has no economic value would be used to process the sauce, generating income from the sale of this waste. On the other hand, they can be of great help to the environment by reducing the pollution currently generated by the final disposal of shrimp and mango waste.

In 2022, in Mexico, the production reached 2,164,435.86, of which Sinaloa contributed 407,247.11 tons (SIAP, 2022). Considering that mango waste (peel and seed/stone) represents around 40%, we can calculate that in Sinaloa the waste from this fruit amounted to 162,898.84 tons that did not have an industrial use. On the other hand, of the 7,943.1 tons of shrimp from the high seas that were obtained during the 2020-21 capture season, approximately 4,765.86 tons were generated, considered waste (shell and head) that were not used and only generated contamination from bad odors caused by its decomposition in garbage cans.

Therefore, it is proposed to develop a sauce made with shrimp and mango waste to help reduce the pollution generated by non-used waste.

The Business Demographics Study (EDN) 2021 estimated that in Mexico from May 2019 to July 2021 1.2 million micro, small and medium-sized enterprises were born and 1.6 million closed their doors permanently.

In 2020, 31.9% of the establishments in Quintana Roo closed permanently and in 2021 this figure rose to 46.6%; this state was the one with the highest proportion of permanently closed establishments.

32.4% of the micro, small and medium establishments that died during this period were informal, while 23.0% were formal. The Study on the Demography of Businesses (EDN), INEGI (2022) reported that from the effects of the COVID-19 pandemic, micro-, small- and medium-sized establishments (MSMEs) represented 99.8% of the total of the country's business. The MSME segment usually presents greater changes than large companies with respect to income, employed personnel, location, closings, and openings, among other aspects. In addition to this natural behavior, the health emergency caused by COVID-19 affected the way in which businesses produce and offer their products or services.

Regarding Sinaloa, CODESIN (2021) mentions that it has six research centers, 13 million tons of active biomass (agricultural, aquaculture, fishing, and livestock), and 6.6 million tons of residual biomass to generate higher-value bioproducts. According to the diagnosis made by CODESIN, the areas with the greatest opportunity to develop new products in the short term (1 to 3 years) or businesses, in the bioeconomy area, are processed foods, biofertilizers, and nutraceuticals. In the longer term, these areas include bioenergetics, bioplastics, and the genetic improvement of plants and animals.

On the other hand, in 2022, the Ministry of Economy through the "Equipa Sinaloa" program delivered 2,249 pieces of productive equipment to small businesses throughout the state with an investment of 5,741,964.98 pesos, which favors the generation of employment since for each equipment a new businessman and businesswoman is born.

Conclusions

Creative strategies for the management and stabilization of mango and shrimp waste from their industrialization, new products with high added value can be developed; which can translate into business opportunities.

By creating new businesses, entrepreneurs create employment opportunities for individuals, boost the competitiveness and productivity of businesses, create new industries that can be growth engines for the future, help improve national income, and introduce product innovation into the market.

The creation of companies through the development of new projects will provide significant results from the socioeconomic, scientific, and environmental points of view. The use of shrimp and mango shell residues can promote the generation of jobs, the use of residues for industrial purposes, the contribution to environmental conservation, the solution to environmental problems that arise with the organic decomposition of waste, and the reconversion of waste into an innovative product that can be given a high added value.

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ROZWÓJ NOWYCH PRODUKTÓW – ALTERNATYWA DLA PRZEDSIĘBIORCZOŚCI

Streszczenie: W firmach przetwórczych jednym z problemów, z jakimi się borykają, jest ostateczne wykorzystanie odpadów powstałych z surowców. Z tego powodu znalezienie możliwości przetwórstwa, pozwalającego na wykorzystanie surowców i generującego dochody, jest alternatywą dla zarządzania nowymi biznesami. W Meksyku 33% przedsiębiorców stara się rozwiązać problem na rynku lub w społeczeństwie, dywersyfikując źródła dochodów i rozwijając swoją kreatywność. Celem tej pracy badawczej jest opracowanie nowego produktu wykorzystującego odpady z krewetek i mango do produkcji sosu, który zaspokoi potrzeby rynku i pozwoli na stworzenie nowego biznesu. Badanie przeprowadzono na podstawie przeglądu raportów literaturowych i raportów ze źródeł takich jak Serwis Informacji Rolno-Spożywczej i Rybołówstwa (SIAP), Narodowy Instytut Statystyki i Geografii (INEGI), Rada Rozwoju Gospodarczego Sinaloa (CODESIN), Ministerstwo Gospodarki. Przedmiotem badań był rozwój nowych produktów i przedsiębiorczości. Zgodnie z diagnozą CODESIN obszarami mającymi największą szansę w krótkim okresie (od 1 do 3 lat) na rozwój nowych produktów, czyli powstanie nowych firm w obszarze biogospodarki, jest żywność przetworzona, bionawozy i nutraceutyki. Podsumowując – opracowanie nowego produktu, takiego jak sos z krewetek i mango, jest opcją inżynieryjną i projektową stanowiącą szansę dla rozwoju nowych biznesów.

Słowa kluczowe: zarządzanie przedsiębiorstwem, przedsiębiorczość, nowe produkty