TRENDY V PODNIKÁNÍ
BUSINESS TRENDS

Obsah – Content

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Klíčová slova – Keywords:
Podniková ekonomika – Business Economics
Management – Management
Marketing – Marketing
Finance a účetnictví – Finance and Accounting

Editorial

Vážení čtenáři,
právě listujete ve druhém čísle letošního časopisu Trendy v podnikání. Většina příspěvků v tomto čísle byla vybrána na základě recenzí ze stejnojmenné konference, kterou Fakulta ekonomická již tradičně pořádá v listopadovém termínu v Plzni. Konference je místo, kde se mohou potkávat různé názory, vytvářet se nové vědecké a projektové nápady nebo předávat zjištění a zkušenosti druhým. Z toho důvodu jsme moc rádi, že tradice konference se opět po covidových letech vrátila a umožnila opět setkávání v osobní formě.
Toto číslo časopisu je poměrně bohaté na počet článků i témat. Jsou zde zastoupeny články z podnikové ekonomiky, financí a účetnictví, ekonomie, ale i marketingu a obchodu. Moc nás těší, že tato všechna témata jsou předmětem vědeckého zájmu a my je můžeme nabídnout i v našem časopise.
Internacionalizací startupů a možnostmi jejich zdrojů se zabývá ve svém článku kolegyně Fischer. Identifikuje sociální kapitál jako kritický z hlediska úspěchu startupů v oblasti internacionalizace.
Podnikatelské soutěže jsou celosvětově vnímány jako důležitý nástroj, který může pomoci začínajícím podnikatelům překonat mnohé překážky, proto se na toto téma zaměřuje článek autorky Zemanové. Ta zkoumá téma podnikatelských soutěží v současné odborné literatuře.
Skýpalová, Vencourová a Hynková zkoumají strategie employer brandu u společností na B2B a B2C trzích. Autorky si dávají za cíl vytvořit metodický návod na tvorbu employer brandu, a tím i přispět ke snazší implementaci tohoto konceptu.
Modely s fixním součtem výstupů představují poměrně novou kategorii modelů pro hodnocení efektivnosti a výkonnosti souboru produkčních jednotek. Jablonský ve svém článku představuje model, jehož výhoda spočívá v tom, že pro dosažení rovnovážné efektivní hranice stačí řešit jedinou lineární optimalizační úlohu.
Na problémy v podpoře a efektivitě bioplynových stanic v Česku upozorňuje článek Svobody a Lososové.
Typologii zákazníků v turismu si jako téma bere článek autorů Waliszewská, Skácel, Spáčil a Halfarová. Na základě jejich výzkumu rozdělili zákazníky do čtyř segmentů individuálních a organizovaných cestovatelů.
Význam kulturních památek na vnímání města zkoumal autorský kolektiv z Fakulty ekonomické ZČU na příkladu chebských krovů. Ukazuje se, že tyto atraktivity mohou být nástrojem pro budování image města, ale musejí být dobře a dlouhodobě komunikovány.
Autorky Turchyn a Kunešová se zabývaly pro změnu vlivem e-commerce na současný obchod a jeho marketing. Obzvláště v kontextu covidové a post-covidové doby je zajímavé sledovat nárůst digitalizace a e-commerce obecně.
Nové trendy v marketingu zkoumá i další článek autorů z Mendelovy univerzity v Brně. Ti se zabývali vlivem influencer marketingu na spotřebu sportovního zboží. Prostřednictvím dotazníkového šetření a hloubkových rozhovorů se zaměřili více na generaci Z.
Jak je z přehledu témat článků vidět, tak trendy v podnikání jsou opravdu pestré, proto je potřeba se jim neustále věnovat. Z tohoto důvodu Fakulta ekonomická Západočeské univerzity podporuje vydávání našeho časopisu i konání mezinárodní konference Trendy v podnikání. Jsme rádi, že i vy jste součástí těchto aktivit a zachováváte nám svou přízeň. Také bych touto cestou rád poděkoval za pomoc při vydávání časopisu svým kolegům z redakce časopisu, bez kterých by tento časopis nemohl být vydáván a do dalších let si přeji, aby náš elán nepolevil.

Za redakční radu
Petr Janeček

OHLÉDNUTÍ ZA KONFERENCÍ TRENDY V PODNIKÁNÍ 2022

Omezení shromažďování jako prevence proti šíření nemoci Covid 19 naštěstí skončila, proto se osmý ročník konference Trendy v podnikání mohl konat prezenčně. Po dlouhých čtyřech letech jsme mohli v Plzni přivítat naše kolegy z domácích univerzit a vysokých škol, ale i ze Slovenska, Německa a Ukrajiny. Dvoudenního jednání v reprezentativních prostorách pivovaru Plzeňský Prazdroj se zúčastnilo celkem 146 účastníků, přičemž 48 účastníků byli studenti doktorských nebo navazujících magisterských studijních programů.

Konference se již tradičně konala pod záštitou děkanky Fakulty ekonomické doc. Ing. Michaely Krechovské, Ph.D. Všechny příspěvky prošly anonymním recenzním řízením a byly publikovány v časopise Trendy v podnikání nebo v konferenčním sborníku.

Konference byla rozdělena do níže uvedených tematických sekcí:

1. Trendy v marketingu a managementu,
2. Kvantitativní metody v podnikatelském a investičním rozhodování,
3. Inovativní a udržitelné přístupy a metody v podnikání a regionálním rozvoji,
4. Nové trendy ve finančním managementu, účetnictví a daních,
5. Ekonomický pohled na moderní trendy transformace k digitální společnosti,
6. Otázky a politiky v oblasti zemědělství, životního prostředí, venkova a energetiky.

Konference byla realizována mimo jiné za finanční podpory projektu SVK1-2022-013 „Trendy v podnikání 2022 – sekce pro studenty doktorských studijních programů“.

Za organizační výbor
Ing. Hana Kunešová, Ph.D.

Trendy v podnikání
mezinárodní vědecká konference

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THE ROLE OF SOCIAL CAPITAL IN THE INTERNATIONALIZATION OF STARTUPS

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Abstract: This article discusses the role of social capital in the internationalization process of startups. Following the resource-based view, social capital is understood as a critical resource and building block for international competence. A special focus is put on how the digitalization of social networks has changed the playing field. Drawing from an analysis of social networks, the interplay of resources, capabilities, and competence, the construct of internationalization, and an understanding of the consequences of digitalization, a conceptual model is proposed. One of the key hypotheses deducted from this model is that the digitalization of social networks results in an accelerated internationalization of startups. Two exploratory case studies with Czech startups serve as a first test and reveal avenues for future research.

Keywords: social capital, social networks, internationalization, startups, digitalization

JEL Classification: M13, M16

INTRODUCTION AND LITERATURE REVIEW

Startups solve problems, i.e. deliver innovative offerings based on an unconventional or even unripe business model, and are meant to grow fast (Rancic Moogk, 2012; Pahwa, 2022). Unlike popular opinion, startups are not reduced to ventures in new technology sectors. They can be for profit, not for profit, and originate from a spin-off of a big corporation, an independent entrepreneur, or the government (Rancic Moogk, 2012). Startups are often associated with a 'startup mentality' or 'startup culture' which implies a certain state of mind (Hyrkäs, 2016). Furthermore, there is no agreement on quantifiable measures such as age or team size to characterize a startup (Han, 2007)[1], and, so far, the EU hasn't defined clear criteria either (Startup Nation Standard, 2020). Like other young ventures, they often operate under insecure and volatile circumstances regarding tangible and intangible resources such as capital, time, personnel, technology, or access to information. Scaling their operations fast under these conditions is a challenge. The access to markets, whether domestic or international and thus growth, can be accelerated by leveraging private and professional contacts, i.e. a startup's social capital. These relationships can either produce knowledge or provide access to one of the other forms of resources, e.g. financial capital. More specifically, it is technological, experiential, foreign institutional, and foreign business or market knowledge that is essential (Han & Afolabi, 2014). To put it differently, one can assume that without the 'right' social relationships a good business idea might never overcome the liabilities of smallness and newness, the lack of legitimacy, and – in the context of internationalization – the liability of foreignness (Han, 2007; Han & Afolabi, 2014).

The importance of social capital for startups has been discussed thoroughly in the context of entrepreneurship or internationalization theory (Coviello & Munro, 1995). Studies link it to performance growth (Maurer & Ebers 2006; Presutti 2010), the viability of the venture (Martinez & Aldrich, 2011; Spiegel et al., 2015), or export

[1] Here are two examples for the disagreement on the quantification of startups: Debrulle & Maes (2015) define startups as 1-3 years old with a team of 1-49 employees. According to the Deutsche Startup Monitor one (of three) characteristic traits for startups is that they are less than 10 years old (Kollmann et al., 2022).

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activity (Sharma & Blomstermo, 2003; Debrulle & Maes, 2015). One drawback of these empirical studies is that they are mostly snapshots, and do not capture the evolving nature of social networks. This shortcoming is recognized by works that conceptualize the process of building, and using social ties, and internationalization of startups (Englis et al., 2007; Han, 2007; Han & Afolabi, 2014).

However, an agreement on how to define or measure social capital does not yet exist (Adler & Kwon, 2002; Doh & Zolnik, 2011). One reason is that social capital is not a capital asset in the traditional sense but rather a "[…] social relational artefact produced in social interactions" (Anderson et al. 2007, p. 245). In this paper, I follow Nahapiet & Goshal's (1998, p. 243) definition of social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network". Consequently, the focus is on social relationship networks and their potential as a resource[2].

Furthermore, the current operationalization or characterization of internationalization in these studies remains very unidimensional. In most studies, internationalization of startups is equalized with exporting activities (Sharma & Blomstermo, 2003). Other forms of internationalization such as importing, international capital sourcing or qualitative characterizations are not acknowledged.

What has changed fundamentally in the last two decades, are the environmental variables of social networks, especially the digitization of finding, managing, and leveraging social relationships (Neubert, 2018). One example is the emergence and exponential growth of professional digital social network platforms such as LinkedIn. This international platform has grown from 37 million users in 2009 to 830 million members in 2022 (Iqbal, 2022). Furthermore, professional meetings have also moved online with video conferencing platforms like Zoom, Microsoft teams, or Cisco webex. Since 2020, this trend to move social professional exchanges online has certainly been accelerated by the Covid pandemic. While empirical studies looking at the relationship of digitalization and internationalization exist, they are often industry specific (Neubert, 2018). More general studies and theoretical concepts that analyze the digitalization of startups' social capital in the context of internationalization are scarce.

Putting the pieces together, it leads to the following question: How does the digitalization of social capital change the internationalization process of startups?

To approximate this subject, a conceptualization of building and leveraging (international) relationships in the process of internationalization of startups in the digital age is proposed, and hypotheses formulated. This is built on a characterization of social networks and internationalization as well as a clarification of the term 'digital age'. Two mini case studies explore the potential and limitations of the concept. Finally, the findings will be summarized and future research paths will be shown.

1. BUILDING AND LEVERAGING (INTERNATIONAL) RELATIONSHIPS IN THE DIGITAL AGE

In order to understand the current role of social capital in the internationalization process of startups, the characteristics of building and leveraging (international) social networks need to be discussed.

1.1. Characteristics of social networks

Firstly, the keeper and builder of social networks is rarely an 'organization'. Rather it is individuals that initiate, develop, and exploit social ties. In startups, the founder and his team members each have their own social network, and are gatekeepers to the knowledge and resources within. (Debrulle & Maes, 2015) The sum of their social ties put to work for the organization then makes up the specific social network of the startup.

Further, the use of the term 'network' implies a common understanding of the construct. Scott (1988, p. 109) points out that "its connotations of textiles, webs, and grids, conjures up a strange but surprisingly powerful

[2] In this paper, the function of social networks as a platform for the advertisement for products and services is deliberately excluded from the analysis.

image of social reality". He goes on to discuss the roots of social network analysis. In this context, he describes the visualization of such networks as "a set of points connected by lines" (Scott, 1988, p. 112). In more recent publications, one finds the terms nodes and ties, with nodes being the actors (organizations, or individuals), and a tie symbolizing the relationship between two nodes/actors (Ashton, 2008).
Another fundamental tenet of social networks is that they are based on 'social relations'. Adler/Kwon (2002, p. 18) describe social relations as a social structure "in which favors and gifts are exchanged" symmetrically (no hierarchies) on diffuse and tacit terms (no formal rules about how and when the favor is returned). They believe that social capital solely relies on this type of relationship. A more comprehensive view, which is followed in this paper and deemed relevant for internationalizing startups, is to include all private, professional, and institutional relations.
Furthermore, the quality of social ties characterizes a network. The most common differentiator is strength of ties, mostly discriminating 'weak', and 'strong' ties (Brass et al., 2004; Han, 2007; Martinez & Aldrich 2011; Han & Afolabi, 2014). The strength of a tie influences the process of information transmission between actors, and "is a combination of the amount of time, the emotional intensity, of intimacy, and reciprocal services that characterize the link" (Granovetter, 1973, p. 1361). In other words, the more frequent, binding, and reciprocal relationship contacts are, the stronger the tie between these actors is considered. The opposite is true for weak ties. However, the act of qualifying a relationship as weak or strong can be very subjective. Certainly easy to relate is the fact that weak ties are more numerous as they do not require as much investment from actors. Nevertheless, these weak ties can be very productive. Furthermore, some agreement exists that weak ties play a more significant role in the internationalization of startups than strong ties (Han, 2007; Han & Afolabi, 2014; Debrulle & Maes, 2015).
Further, social networks have quantifiable characteristics. The number, density and geographic dispersion of actors and ties in a network are among the most popular measures. Interesting, albeit harder to operationalize, is the centrality of an actor as "[…] actors in the center of a network are more connected than those on the periphery" (Ashton, 2008, p. 37).
Both, quantifiable and qualitative characteristics of social network relations, are subject to change over time. In the context of social networks, the conventional expectation is one of growth and multiplication. The opposite is conceivable, too, e.g. in the case of closure.

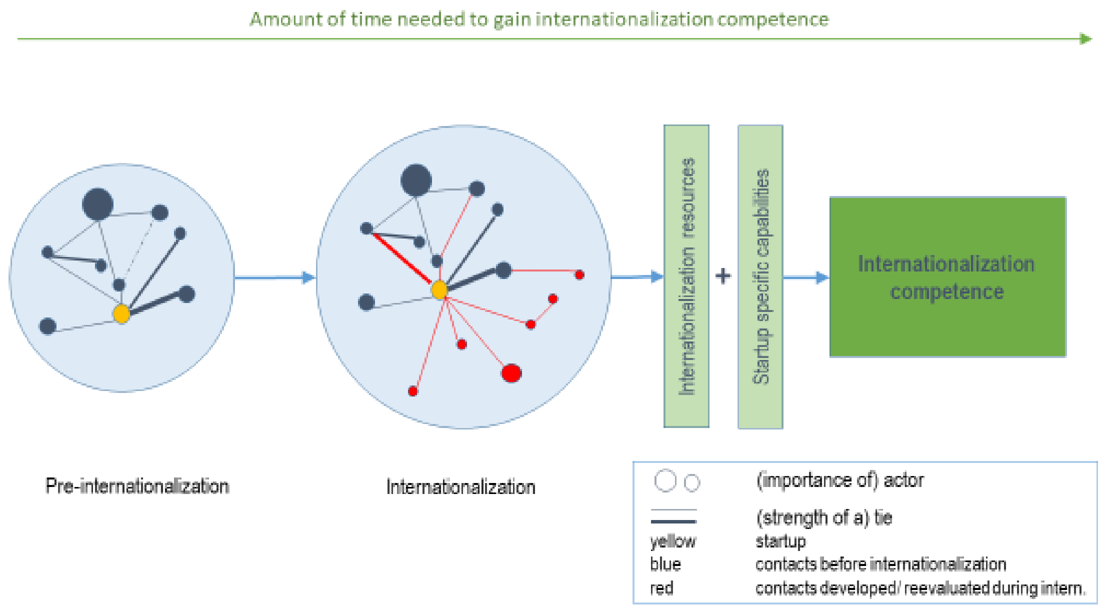
1.2 Resources, capabilities and international competence

For startups, social capital is an essential resource as well as – in the form of social networks – a gateway to resources (Englis et al., 2007; Rodrigues & Child, 2012). The exchange of ideas, building trust andcreating knowledge are different aspects of this resource, which is essentially intangible. However, a contact can also lead to the acquisition of tangible resources such as financial capital, a new staff member, or the lease of assets.
Further, a resource is only valuable if you use it. Drawing from the resource-based view of strategy, resources - together with firm-specific capabilities - are one of the building blocks of competencies, and core competencies form a company's competitive advantage in the market. So, the resource 'social capital' combined with entrepreneurial skill, or other firm specific capabilities, can build startup competencies, for example in the area of internationalization (Gruber-Muecke, 2012). These competencies float a business idea, and, in the best of outcomes, make it viable, and competitive in the international market. (Rodrigues & Child, 2012)
Adler & Kwon (2002) point out that social capital can function as a complement to or a substitute for other resources. They (ibid., p. 21) go on to state: "As a substitute, actors can sometimes compensate for a lack of financial or human capital by superior "connections"." This seems to be quite fitting for the situation of startups in the process of internationalization. The consequent assumption is that for these startups social capital bears more significance than it does for more mature, or bigger corporations.

1.3 Internationalization

For startups, internationalization is a vehicle to accelerated growth outside the domestic marketplace (Han, 2007). That is true if the market across the border is actually attractive for the product or service a startup offers. If not, and that is the case for many startups, they concentrate their development on the domestic market until they eventually (or not) get pulled or pushed into international markets (Mc Dougall et al., 2005). The timing of a venture's interest in internationalization has led to the distinction of so called 'Born Globals' which internationalize from day one (Oviatt & McDougall (1994); Knight & Cavusgil, 1996). Others follow a more gradual path.
A point of contention remains the conceptualization of the construct 'internationalization', or 'internationality'. This is well documented in the vast body of definitions and concepts of what constitutes an 'international organization'. Consequently, it is no wonder that so many different approaches to the operationalization and measurement of internationality exist. (Fischer, 2006) For this paper, the crossing of country borders of all services and (pre-)products as well as the establishment of international cooperative engagements is seen as the outcome of internationalization. However, the evolutionary and dynamic process of internationalization begins with the creation and securing of resources, e.g. social capital, relevant to internationalization.
The interplay of social networks and internationalization is depicted in Fig. 1. It shows how in the process of internationalization startups expand and reevaluate their social networks. New (international) contacts are formed, others repurposed or strengthened. Further, the understanding of social networks as a resource or gateway to resources for building internationalization competences is documented.

Fig. 1: Social networks as a resource for building internationalization competences



Source: Author of this paper

The next step consists of analyzing and discussing the relevance of the digitalization of information and social networks on the internationalization of startups. Here, hypotheses are formulated about how these fundamental changes influence the internationalization of startups.

1.4 Digitalization of social capital

The advent of the digital age cannot be reduced to a certain date or event. Digitalization is a process and according to a sociological perspective of Musik & Bogner (2019, p. 6) "a phenomenon where the social and the technical meet".

The advancement of digital networking platforms, also often referred to as social media, and the possibility of online contacts in general, have added a new dimension to social networks. However, a clear definition of this phenomenon does not yet exist. Typical characteristics include interactivity, rapid growth, the integration with mobile devices, and user-generated content. (Kim et al., 2014) Concrete concepts how startups can best exploit digitalized social networks are still rare. What is clear is that digitalized social networks multiply the chances of engagement. (Maltby, 2012) Whereas meeting in person, sending letters by post, or conversing on the phone were the norm until the late 1990s, many social contacts evolve and start online today. We now have the options of real world, or online relationships, or a combination of both. Thus, this presents hypothesis no. 1: *Digital technologies enlarge the utilizable size of a startup's social network.*

Digital technologies and platforms make initiating first contact, or reinstating one, and keeping in touch easier. Obviously, this is not only attractive in the private sphere but also when building professional networks. (Kim et al. 2014) Using an electronic device such as a smartphone or laptop, one gets on the internet, accesses a browser or a professional network platform, searches with keywords, and can immediately contact promising leads via email, or instant messaging. Later follow ups can be a video conference, phone call, or email. Traditional networking occasions such as participating in an exhibition fair, or attending an industry event take more time, cost more, and are less targeted. However, the chances of creating stronger ties are probably higher than online. Online, it is not uncommon to have a big number of contacts of which the majority stays a weak relationship. This leads to hypothesis no. 2a: *The use of online sources multiplies the creation of weak social ties in a given time span*, and hypothesis no. 2b: *The number of online social ties grows in the process of internationalization, and shifts the balance between real-world, hybrid, and solely online contacts.*

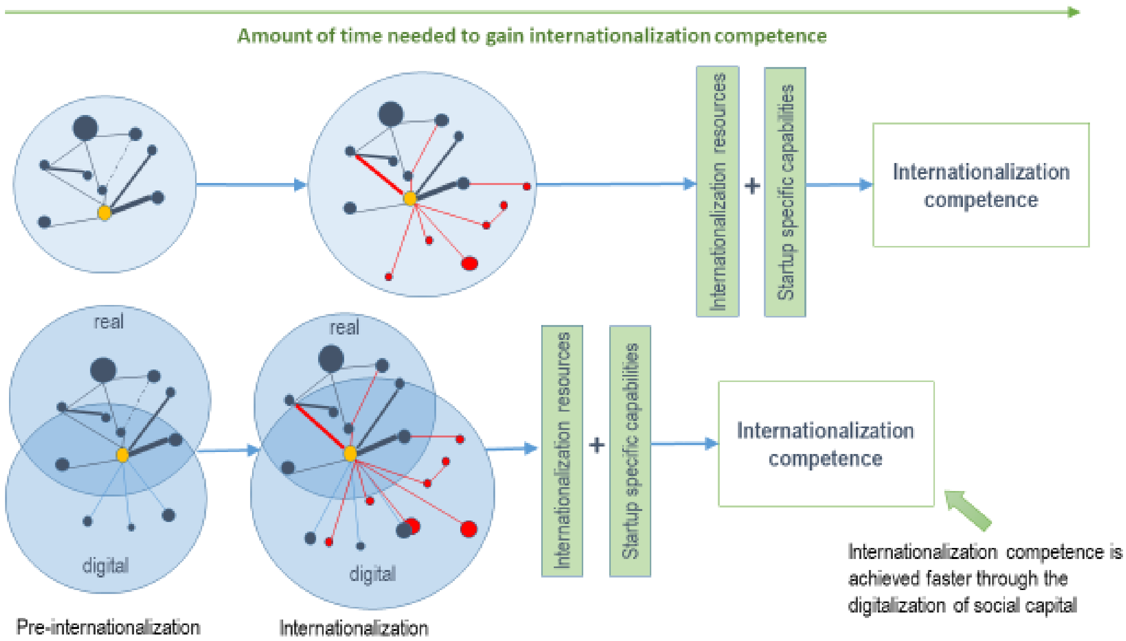
Furthermore, geographic boundaries are easier to overcome online than in reality. Instead of crossing physical borders to reach potential or existing relations in a new country market, the only boundary in online settings seems to be the language. So, the existence of digital professional network platforms such as LinkedIn support and simplify access and utilization of network relations for startups seeking to build internationalization competencies. This leads to hypothesis no. 3: *Startups often initiate new, international contacts online. The further development of these relationships happens on- and offline.*

Also, the social barriers to contact even a weak relationship (or a new one) are much lower online than. Online, the activation of a contact is only one click and a short message away. In the 'real world', it often costs more effort and more time to dig up the contact details, pick up the phone, get a hold of the person, and then possibly travel for a personal meeting. Thus, access to information and other resources relevant for internationalization happens more quickly. This leads to hypothesis no. 4: *The growth and geographic reach of a startup's social network is accelerated with the utilization of the internet, online social network platforms, and other digital technologies.*

Finally, it can be assumed that accelerated access to social capital, or other resources, changes the speed of internationalization of a startup. This is captured in hypothesis no. 5: *The digitalization of social capital accelerates the acquisition of resources relevant for internationalization, and thus the internationalization process of startups.*

Fig. 2 visualizes the proposed changes caused by the digitalization of social capital. Besides the now multiple dimensions of social networks, the multiplication of (weak) ties especially online, the increased utilizable size of the networks, it also shows the acceleration of the process of developing and using social capital relevant for internationalization.

Fig. 2: Digitalization of social capital and the internationalization of startups



Source: Author of this paper.

To explore the relevance of these hypotheses for future research, two exploratory case studies were conducted.

2. EXPLORATORY CASE STUDIES

Object of the two case studies are the Czech startups PlantControl and nvias based in Pilsen. They share a (co-)founder but differ in content, age, and internationalization progress.
The two case studies originate from an interview with the (co-)founder of the startups conducted on Sept. 20, 2022 as well as oral and written exchanges at multiple on- and offline encounters, and project collaborations over the course of the past 12 months (Sept. 2021 – 2022). Further, the respective web pages (both have English versions) provided additional insights.

2.1 Case study nvias

nvias, a non-profit startup in the education industry, was founded in Jan. 2017. The business concept is to create a space where (young) people can learn about new technologies, and how to integrate them to create a better world. nvias offers programs for schools as well as afterschool activities in the form of clubs and workshops. Together with a Czech partner (NGO Bridge Academy), they recently started the 'Bridge Academy Group, s.r.o.' with for-profit after school clubs for children. Besides, they have also started doing for-profit educational events for companies and other institutional organizations.
The internationalization of nvias was not strategically planned. However, the founding team understood the need for future internationalization at inception: the content of their offering - educational services around new technologies and in the context of the global climate crisis - demands international experience, and an exchange of ideas with a diverse clientele. The internationalization process evolves through word-of-mouth, and 'walking through opening doors'. Most of these contacts are established online or at social events. nvias has a well-structured domestic social network with ambassadors spreading the concept around the Czech Republic. The ratio of weak to strong ties is roughly 70 to 30.

Concerning internationalization, nvias' service initially crossed the borders to two neighboring countries, Germany and Slovakia. Today, they also have business activities in Slovenia and other European countries. Further, they run big Erasmus+ projects with a Polish partner, and receive funds from Iceland, Liechtenstein, and Norway. While nvias' team coordinates the Czech offering, the Polish arm has now also ventured across the Atlantic (U.S.A.). The establishment of the international collaboration with the Polish partner goes back to a referral from an online acquaintance, i.e. a rather weak social tie. Overall, 80 % of business is Czech, and 20 % is international.

2.2 Case study PlantControl

The business idea of PlantControl – to revolutionize traditional irrigation systems by integrating them with the Internet of Things (IoT) - was conceived and tested at a Hackathon. This is also where the two co-founders met. One of them had been discussing the irrigation industry with an old friend from college. The co-founders officially started the company in December 2020.

Initially, they concentrated on developing and prototyping their product. To do so they reached out online to international suppliers, e.g. Chinese companies, for pre-products, technical and electronic parts.

Very early on they realized that the neighboring German market bears a lot of sales potential for this type of product. They started researching possible sales avenues, and potential partners in Germany. For this they mainly rely on establishing new international contacts. The initial outreach is and was mostly online. Sometimes it is a direct hit, other times they get a referral. These referrals lead to new potential sources, and so on. Besides many weak ties, one of these searches led them to a German partner with whom they have built a strong relationship.

According to the interviewee, the most important resources for the internationalization of PlantControl are: (1.) time, (2.) a combination of the internet, and online social network platforms. The latter is used for researching potential partners, gathering information about market and industry specifics, contacting innovation centers, participating in on- or offline conferences, and exhibition fairs. These searches, and efforts to build new (international) relationships are strategically driven, and follow a plan. New and established contacts are saved and documented in a web-based CRM[3] system. The ratio of weak to strong ties is estimated at 80/20.

In the interview, the co-founder stated that international sales currently account for 5 % of total revenues. Asked about how the ratio would change if their import of pre-products and other material counted, the answer is that PlantControl is approximately 25 % international, and 75 % Czech.

3. DISCUSSION OF RESULTS

As stated before, the two mini-cases are a first exploration into the testing of the hypotheses. It can give guidance to the decision of whether to attempt a bigger empirical study or not.

Starting with hypothesis 1 (Digital technologies enlarge the utilizable size of a startups social network.), the cases do not yield any real insight. This is due to several facts: First, the discussed startups were both founded in times when social networking had already become an online affair. Thus, there is no way to know whether their utilizable network would have expanded. Actually, this hypothesis might only be validated by a thorough research into the (empirical) history of social networking with a special focus on the shift from off- to online networking. Research in this direction is happening (Buchnea & Elsahn 2022), and should be extended.

The given ratios of weak to strong ties indicate that the majority of the social networks of nvias and PlantControl consist of weak ties. However, it is not clear whether this ratio is due to the use of online sources or not. Thus, hypothesis no. 2a (The use of online sources multiplies the creation of weak social ties in a given time span.) is only partly supported. Hypothesis no. 2b (The number of online social ties grows in the process

[3] Customer Relationship Management

of internationalization, and shifts the balance between real world, hybrid and solely online contacts.) was confirmed in the two case studies as the online social networks of both nvias and PlantControl expanded during internationalization. Thus, the overall social network shifted towards the online dimension. Further, the majority of new contacts are established online and developed online or by meeting in person which supports hypothesis no. 3.

While PlantControl's international network, and thus internationalization, is definitely being propelled forward with the utilization of online sources, nvias shows a more gradual internationalization pace. One reason might be the differences between service and product internationalization. Exporting nvias' service means transporting a whole team of educators across borders for every single client mandate. However, the more recent setup of an international strategic partnership (with the Polish organization), which also originated through an online contact, gives their internationalization a boost. PlantControl, on the other hand, has successfully pursued growth from an early stage through international online networking[4]. More empirical work would thus be needed to confirm hypothesis no. 4 (The growth and geographic reach of a startup's social network is accelerated with the utilization of the internet, online social network platforms, and other digital technologies.) and hypothesis no. 5 (The digitalization of social capital accelerates the acquisition of resources relevant for internationalization, and thus the internationalization of startups.)

CONCLUSION

A conceptual model to analyze the influence of the digitalization of social capital on the internationalization of startups was proposed. The basis for this theoretical concept was drawn from empirical and conceptual research on social networks, firm internationalization, and the resource-based view from strategic management. The key idea is that the expansion of social networks into the online sphere enlarges and accelerates startups' access to information, knowledge, and other resources. These resources are needed for (fast) growth in the form of internationalization.

Hypotheses were formulated, and two mini cases served as an exploration into their steadfastness. The preliminary result is mixed, and invites future research endeavors into this field. Besides needing a broader empirical base, a focus on either service or product startups is advisable. Further, a more detailed exploration of the direct and indirect procurement of resources from social contacts is necessary.

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PODNIKATELSKÉ SOUTĚŽE A JEJICH VÝZNAM
BUSINESS COMPETITIONS AND THEIR IMPORTANCE

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Abstract:
This contribution deals with the topic of business competitions and their importance for many subjects belonging to the business environment. The contribution was created on the basis of a systematic analysis of available foreign sources, focusing on the topic of business competitions. Based on this analysis, a theoretical framework was created with all concepts related to this subject matter. The theoretical framework is followed by a deeper analysis of selected articles from the Web of Science and Scopus databases. The aim of the contribution is a) to theoretically define entrepreneurial competitions together with other terms that are directly related to the topic, b) to analyze available articles and c) to draw relevant conclusions based on a selected sample of available literature, which will bring new knowledge to the theory. The focus of the article was chosen due to the growing number of business competitions not only in the Czech Republic, but worldwide. The added value of the article consists of a) defining the theoretical basis of the topic of business competitions b) identifying the meaning of business competitions. The biggest limitation of this contribution is the limited amount of available data on entrepreneurship competitions, which is also confirmed by a foreign source.

Keywords: competitions, business plan, business plan competitions, business environment, startup

JEL Classification: M20, M21

ÚVOD

Rozvíjející se globalizace, vývoj podnikatelského prostředí, rozvoj informačních technologií a mnohé ekonomické výzvy a požadavky, toto všechno jsou skutečnosti, kterým dnešní podnikatelské celky čelí.
Malé a střední podniky (MSP) přebírají hlavní vliv na ekonomický rozvoj, zaměstnanost a tvorbu nových inovací. Celosvětově každoročně vzniká mnoho nových podnikatelských subjektů v rozvojových zemích. Tyto podniky se však obecně potýkají s problémy při získávání přístupu k financím, protože investoři neupřednostňují investování do malých a středních podniků kvůli jejich rizikové povaze obchodní činnosti. To představuje jeden z problémů, proč více než čtvrtina nově vznikajících podniků ukončí svou podnikatelskou činnost do jednoho roku (Massa a Testa, 2008, McKenzie a Paffhausen, 2018).
Oblast podpory podnikání je stále více v podnikatelském prostředí důležitá a využívána, protože vzhledem k rostoucí konkurenci, a tedy i snaze podniků získat svou konkurenční výhodu, je mnohem více než dříve podstatné dosahovat vytyčených cílů a přicházet s inovacemi.
Podnikatelské soutěže jsou celosvětově vnímány jako důležitý nástroj, který může začínajícím podnikatelům pomoci překonat mnohé překážky a to v podobě nedostatku peněz či nedostatku kontaktů. Soutěže dokáží rozvinout mnohé klíčové vlastnosti, dovednosti či schopnosti jedinců či skupin, zlepšit jejich veřejné projevy či dodat jim sebevědomí. Všechny tyto skutečnosti mají pozitivní vliv na jejich budoucí podnikatelské aktivity, což lze potvrdit mnoha zahraničními studiemi.

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Příspěvek je organizován následovně. První část článku stručně shrnuje teoretickou základnu příspěvku. Další část je věnována samotné rešeršní analýze, na jejímž závěru jsou shrnuty nalezené poznatky v tématu podnikatelských soutěží.

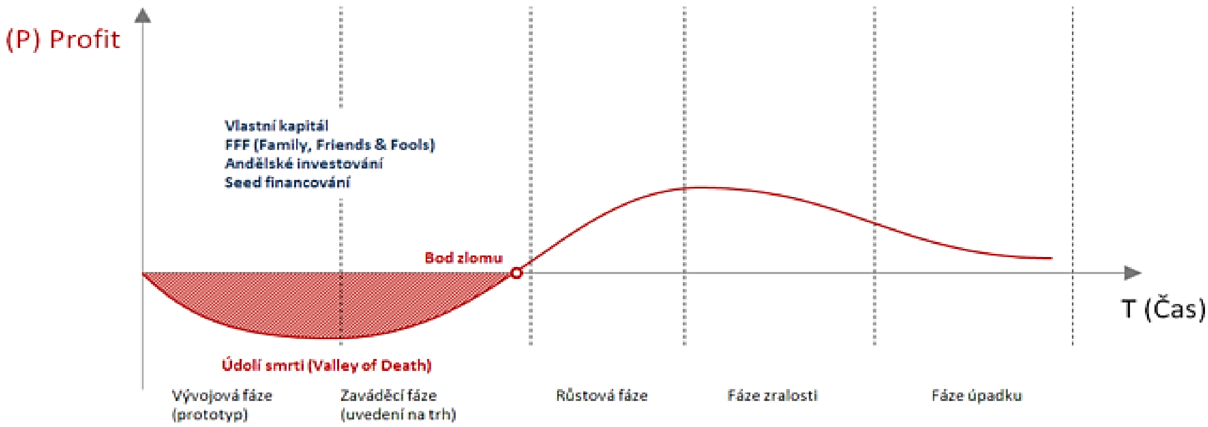
1. TEORETICKÝ ÚVOD DO PODNIKATELSKÝCH SOUTĚŽÍ

Celosvětově vznikly podnikatelské soutěže s cílem poskytnout a vytvářet podmínky pro vytváření nových podniků, zachycení nápadů a talentů. Mnoho podnikatelských soutěží neposkytuje pouze finanční podporu, ale i nefinanční v podobě poradenství či rozvoje (Russel et al., 2008; Grimaldi & Gradi, 2005; Wonglimpiyarat, 2016).

Podnikatelské soutěže lze vnímat jako nástroj podpory rozvoje podnikatelského ducha i znalostí o podnikatelském prostředí. Vzhledem k náročnosti zahájení podnikání a obtížnosti získávání nejen počátečního financování, podnikatelské soutěže mohou představovat příležitost k lepšímu získávání nových finančních zdrojů či místo, kde se zakladatelé mají možnost propojit blíže s podnikatelským prostředím a navázat velmi důležité kontakty (Gompers & Lerner, 2004).

Níže na Obr. 1 je zobrazeno údolí smrti, které lze přiblížit jako fázi, ve které začínající podniky bojují s problémem získávání potřebného kapitálu pro začátek svého podnikání. Údolí smrti představuje období, kdy společnost negeneruje příjmy, což limituje podnik při získání potřebných financí, které potřebuje k rozvoji podnikání v prvotní vývojové fázi. V mnoha případech ovšem právě tyto soutěže dokáží pomoci začínajícím podnikům překonat tuto fázi a stát se prosperujícím podnikatelským celkem (Barr et al., 2009; Wonglimpiyarat, 2016).

Obr. 1: Údolí smrti



Zdroj: managementmania.com, 2022

První zmínka o podnikatelských soutěžích byla zaznamenána v USA, konkrétně v Texasu, a to již v roce 1984 (Kraus & Schwarz, 2007; Ross & Byrd, 2011). Od tohoto roku dochází postupně k nárůstu podnikatelských soutěží po celém světě a taktéž v množství institucí, které jsou do těchto aktivit zapojeny. Dle Grimaldiho (2011) došlo ke vzniku regionálních, národních ale také i mezinárodních soutěží jako například Rice Business Plan Competition, European Business Plan of the Year Competition nebo Reaserch Councils UK Business Plan Competition.

Po celém světě byly soutěže založeny s cílem tvorby nových firem, rozvoje talentů a podnikatelského prostředí a v neposlední řade k odhalení nových podnikatelských nápadů (Thomas et al., 2014).

Soutěže nejsou pouze pro jednotlivce, ale i týmy, které mají svou podnikatelskou vizi. Tyto vize či nápady jsou zpravidla posuzovány skupinou oborníků, na základě proveditelnosti a udržitelnosti, přičemž nejhodnotnější nápady jsou odměněny formou ocenění. Soutěže lze vnímat za vrcholový pojem, který zahrnuje nejen soutěže obchodních modelů, ale také i pitchingové soutěže, soutěže o crowdfunding, soutěže

o akcelerátory a ceny pro začínající podniky, stejně jako všudypřítomné soutěže podnikatelských plánů (Cant, 2016).
Dle Canta (2016); Thomase a kol. (2014) a Watsona a kol. (2015) jsou různé druhy podnikatelských soutěží, z čehož plynou i různé klíčové funkce soutěží. Celkem byly z těchto zdrojů identifikovány funkce jako:

- poskytování nových učících metod,
- motivace lidí k tvorbě podnikání,
- budování podnikatelských dovedností,
- získávání počátečního, rizikového, zdroje financování,
- navazování cenných kontaktů,
- rozvíjení podnikatelských modelů.

2. METODOLOGIE

Příspěvek byl vytvářen pomocí systematické analýzy vědeckých článků dostupných v databázi Scopus a Web of Science za období roků 2011 až 2022.
Příspěvek byl tvořen ve čtyřech fázích. V první fázi došlo k vybrání tématu a definování teoretické základny příspěvku. Cílem tématu je a) teoreticky vymezit podnikatelské soutěže spolu s dalšími pojmy, které s tématem přímo souvisejí, b) analyzovat dostupné články a c) vyvodit relevantní závěry na základě vybraného vzorku dostupné literatury, které přinesou nové poznatky do teorie.
Téma tohoto příspěvku bylo zvoleno z několika důvodů:

- Rostoucí význam v národním i mezinárodním kontextu.
- Přímá vazba na studijní zaměření autorky.
- Vliv tématu na rozvoj podnikatelského prostředí.

Účelem fáze 2 bylo definovat klíčové parametry pro hlubší systematickou analýzu dostupných odborných článků, dále také vybrání databází, ze kterých se tyto články budou čerpat. Všechny tyto stanovená kritéria jsou vypsána v Tab. 1 níže. Další fáze byly zaměřeny na hlubší analýzu vědeckých článků a výběr relevantního vzorku, ze kterého lze vyvodit závěry a odborné zaměření aplikovatelné pro další výzkumné činnosti.
Články byly vybírány z databázových zdrojů za použití vyhledávácích podmínek. Články byly vyhledávány se zaměřením na podnikatelské soutěže. Vše bylo vyhledáváno se zadáním klíčových slov v anglickém jazyce s cílem získat větší základnu článků. Stanovená klíčová slova byla vyhledávána v oblasti: klíčových slov článků, názvu článků a v neposlední řadě v abstraktu.

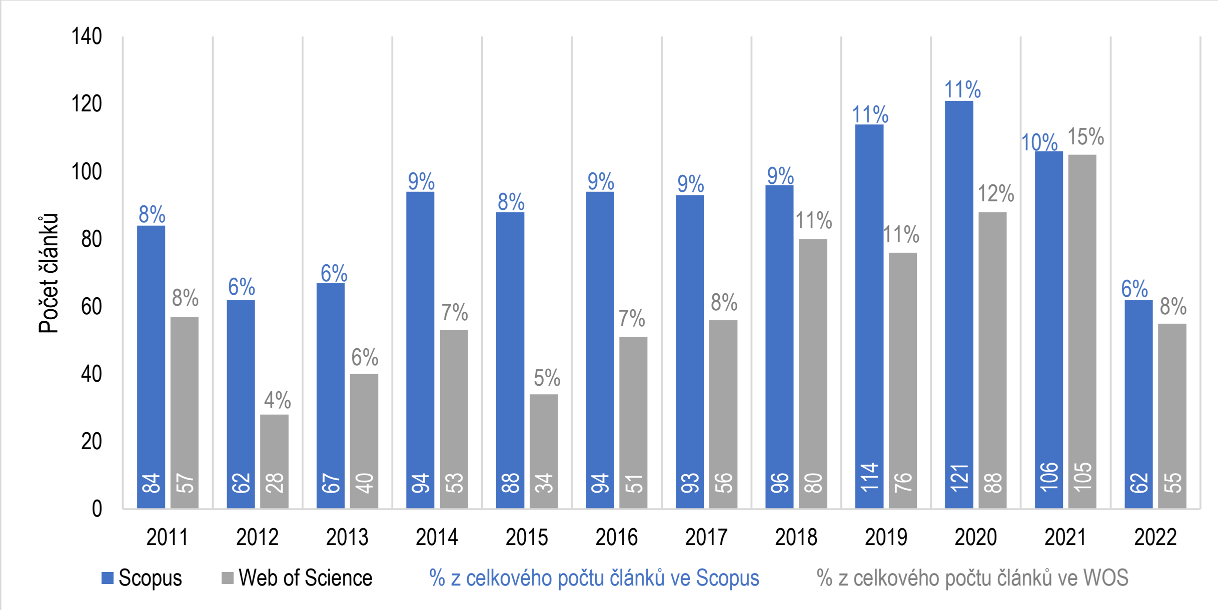
Tab. 1: Kritéria výběru článků

OBLAST	KRITÉRIUM
Klíčová slova	Business Plan Competition, Business Plan Contest, Startup Competition, Startup Contest, Development
Časové období	2011 - 2022
Typ zdroje	článek
Jazyk	anglický
Vyhledávací zdroje	Scopus, Web of Science
Vymezená oblast	Business, Management and Accounting Economics, Econometrics, and Finance

Zdroj: vlastní zpracování, 2022

Celkem bylo z obou vyhledávacích zdrojů nalezeno 1 804 článků za zvolené období 11 let, které odpovídaly stanoveným kritériím. Níže je potvrzení, že toto téma je stále více aktuální. Tato skutečnost je podpořena faktem, že postupem let dochází k neustálému růstu počtu článků zaměřujících se na tuto problematiku.

Obr. 2: Články ve vědeckých databázích za období 2011 – 2022 (k 07/2022)



Zdroj: vlastní zpracování, 2022

Při pohledu na geografickou skladbu článků lze zaznamenat, že je na prvním místě Velká Británie, což je země, která za zkoumané období publikovala největší množství článků s touto tématikou. Na dalších místech se umístila Severní Afrika, Německo a Austrálie.

Články vyhovující stanoveným kritériím byly pomocí abstraktu zhodnoceny a byly vybrány pouze ty, které lze s ohledem na téma příspěvku vnímat jako relevantní. Ve fázi 3, ve které byly jednotlivé články analyzovány, došlo k vyřazení osmi článků na základě hlubší analýzy z hlediska reálné vazby zaměření článků na zvolené téma. Cílem této fáze bylo selektovat články, které sice splňují stanovená kritéria, ale v samotné stati článku se na toto téma zaměřují pouze okrajově a zkoumají spíše jinou problematiku.

3. ÚČEL

Cílem příspěvku je a) teoreticky vymezit podnikatelské soutěže spolu s dalšími pojmy, které s tématem přímo souvisejí, b) analyzovat dostupné články a c) vyvodit relevantní závěry na základě vybraného vzorku dostupné literatury, které přinesou nové poznatky do teorie.

Dílčími cíli této práce jsou:

- provézt teoretickou rešerši odborné literatury a článků dostupných v databázi Web of Science a Scopus,
- analyzovat vybraný vzorek odborných článků,
- zjistit nejvíce zastoupená výzkumná témata,
- vymezit závěry z dostupné odborné literatury.

4. VÝSLEDKY

Články byly voleny nejen s ohledem na vazbu k tématu tohoto příspěvku, ale také s ohledem na pokrytí celého zkoumaného období. Konečný počet článků, kterým byla v rámci příspěvku věnována hlubší analýza, dosahoval počtu 23, což je celkem 2 % z nalezeného počtu článků.

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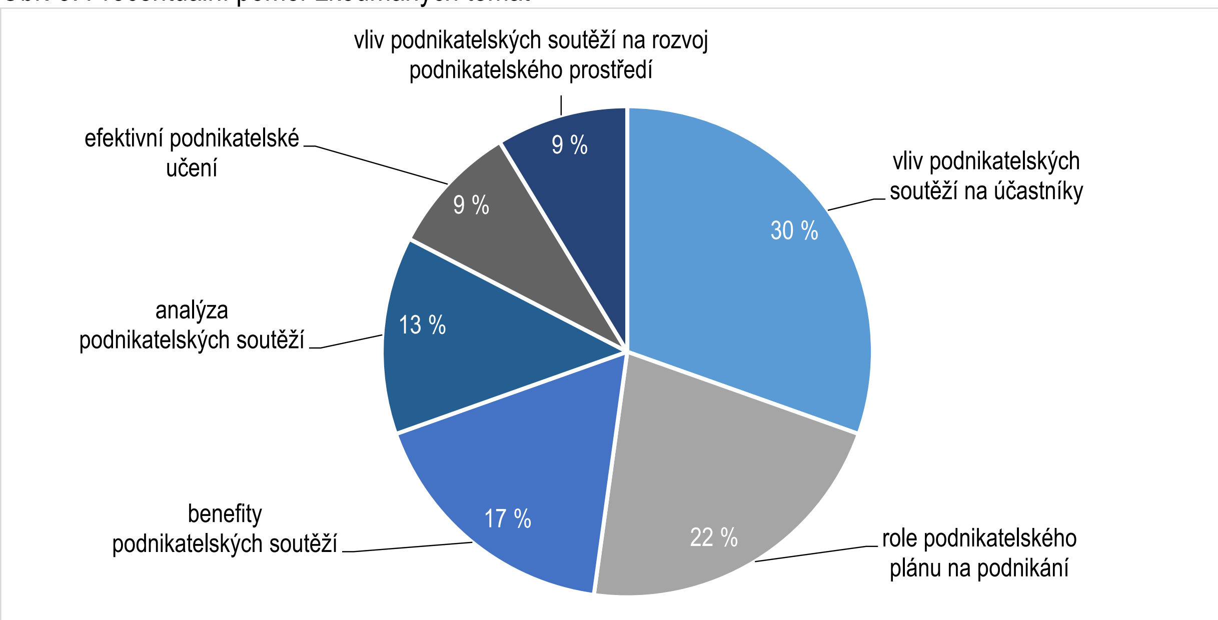
Z výstupů lze říci, že použité typy výzkumu ve zvoleném vzorku jsou vyrovnané a primárně je při řešení problematiky upřednostňován kvalitativní typ výzkumu. Výzkum smíšený se vyskytoval minimálně.
Mezi metodami sběru dat, které se ve vybraném vzorku studií nejvíce objevovaly, se s 26% zastoupením objevovalo dotazníkové šetření a rozhovory. Další v pořadí byly databáze, poskytující ucelená data z jednoho rozsáhlého národního zdroje, ze kterého byly pomocí filtrů vyselektovány potřebné informace.
Tab. 2 níže zobrazuje celkový výčet zvolených článků i včetně informací o zemi zkoumání, roku publikace, zdroji v jakém byly nalezeny a v neposlední řadě i o zkoumaném tématu.
Mezi hlavními zkoumanými tématy byla (seřazeno podle procenta zastoupení), viz. Obr. 3:

- vliv podnikatelských soutěží na účastníky,
- role podnikatelského plánu na podnikání,
- benefity podnikatelských soutěží,
- analýza podnikatelských soutěží,
- efektivní podnikatelské učení,
- vliv podnikatelských soutěží na rozvoj podnikatelského prostředí.

Obr. 3: Procentuální poměr zkoumaných témat



Zdroj: vlastní zpracování, 2022

Nalezené odborné publikace velmi rozmanité. Pokud by došlo ke shrnutí výstupů, které byly ve vybraném vzorku nejčastěji objevované, hovořilo by se především o

- vlivu podnikatelských soutěží na účastníky, ať už z hlediska veřejného vystupování; rozvoje jejich kompetencí, znalostí, manažerských a technických dovedností; schopností v oblasti podnikání či v dopadu na jejich sebevědomí,
- jejich úspěšnosti, z hlediska nově zahájeného podnikání po účasti v soutěži,
- pozitivním vlivu na zájem účastníků o podnikatelské prostředí,
- poskytnutí nových příležitostí a kontaktů,
- významu podnikatelského plánu.

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Tab. 2: Seznam zkoumaných článků

ID	AUTOR / AUTOŘI	ZEMĚ ZKOUMÁNÍ	TÉMA	ZJIŠTĚNÍ	TYP VÝZKUMU	METODA SBĚRU DAT
1	**Ghani, M. G. A., & Mohammad, N. (2021)**	Malajsie	efektivní podnikatelské učení	• Významný vztah mezi vlastnostmi studenta, lektora a efektivitou učení.	kvantitativní	dotazník
2	**McKenzie, D., & Sansone, D. (2019)**	USA, Velká Británie	analýza podnikatelských soutěží	• Hodnocení porotců nesouvisí s přežitím podniku, prodejem nebo ziskem o 3 roky později. • Klíčové charakteristiky podnikatelů jsou pohlaví, věk, schopnosti s vazbou na zvolený sektor. • Moderní metody učení neposkytují zlepšení v této oblasti.	kvantitativní	databáze
3	**Cant, M. C. (2016)**	Severní Afrika	vliv podnikatelských soutěží na účastníky	• 10,7 % účastníků zahájilo podnikání po účasti v soutěži. • Soutěž neposkytovala dostatek příležitostí k získání nových kontaktů, jaké účastníci očekávali. • Obecně bylo potvrzeno, že podnikatelské soutěže mají pozitivní vliv na zájem o podnikatelské prostředí.	kvalitativní	dotazník
4	**Watson, K., McGowan, P., & Smith, P. (2015)**	Velká Británie	benefity podnikatelských soutěží	• Soutěž poskytla cenné příležitosti pro vytváření sítí a kontakty pro spolupráci s ohledem na „koho znají"; a zlepšila „to, co vědí", tím, že umožnila získání, rozvoj a aplikaci klíčových kompetencí.	kvalitativní	rozhovory
5	**Cant, M. C. (2016)**	Severní Afrika	vliv podnikatelských soutěží na rozvoj podnikatelského prostředí	• Větší polovina účastníků začala podnikat. • Byly zjištěny rozdíly ve vnímané hodnotě a užitečnosti médií. • Klíčové u zhodnocení užitečnosti médií byl především věk účastníků.	kvalitativní	rozhovory
6	**Botha, M., & Robertson, C. L. (2014)**	Severní Afrika	role podnikatelského plánu na podnikání	• Statistiky bylo ověřeno, že podnikatelský plán je nástroj, který umožňuje potenciálním podnikatelům vyhodnotit příležitosti. • Studie potvrzuje význam a účel podnikatelského plánu v oblasti podnikání.	kvantitativní	dotazník
7	**Dorogov, N. I., Kapitonov, I. A., & Batyrova, N. T. (2020)**	Rusko	vliv podnikatelských soutěží na rozvoj podnikatelského prostředí	• Potřeba zajistit rozvoj podnikatelské činnosti.	kvantitativní	databáze
8	**Fichter, K., & Tiemann, I. (2020)**	Německo	vliv podnikatelských soutěží na účastníky	• Podpora udržitelnosti má dopad na zahájení podnikatelské činnosti.	kvantitativní	případová studie
9	**Bell, R., & Bell, H. (2016)**	Velká Británie	vliv podnikatelských soutěží na účastníky	• Největší dopad na sebevědomí studentů a schopnosti začít podnikat.	kvalitativní	rozhovory

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10	**McGowan, P., & Cooper, S. (2012)**	Velká Británie	role podnikatelského plánu na podnikání	• Získané zkušenosti z podnikatelských soutěží mohou povzbudit k založení podniku, zajišťují dlouhodobé podnikatelské aspirace. • Ti, kteří nezačnou podnikání, mají ovšem více znalostí k tomu aby svému zaměstnanci přispívali k inovacím.	kvalitativní	případová studie
11	**Watson, K., McGowan, P., & Cunningham, J. A. (2017)**	Velká Británie	vliv podnikatelských soutěží na účastníky	• Účast v soutěži měla vliv na rozvoj kompetencí, veřejného vystupování, vytváření sítí, podnikatelského plánu a na sebevědomí.	kvalitativní	rozhovory
12	**Kwong, C. C., Thompson, P., & Cheung, C. W. (2012)**	Velká Británie	vliv podnikatelských soutěží na účastníky	• Bylo zjištěno, že soutěže mají vliv na zvyšování sebevědomí, povědomí o oblasti podnikání, prohlubování manažerských a technických dovedností.	kvalitativní	rozhovory
13	**Wonglimpiyarat, J. (2016)**	Thajsko	benefity podnikatelských soutěží	• Je třeba zlepšit politiku na podporu inovativních podniků.	kvalitativní	případová studie
14	**Jones, C., Penaluna, A., Matlay, H., & Penaluna, K. (2013)**	Velká Británie, Austrálie	role podnikatelského plánu na podnikání	• Pro osobní rozvoj nemusí využití podnikatelského plánu přispívat žádnou hodnotou.	kvalitativní	sekundární zdroje
15	**Fernández-Guerrero, R., Revuelto-Taboada, L., & Simón-Moya, V. (2012)**	Španělsko	role podnikatelského plánu na podnikání	• Ekonomické, finanční ani organizační proměnné, které hodnotí podnikatelský plán, nemají rozhodující vliv na přežití podniků. • Přidáním ukazatelů vzdělání, zkušeností, počátečního kapitálu se prediktivní schopnost zvyšuje minimálně.	kvantitativní	databáze
16	**Stolz, L. (2020)**	Německo	benefity podnikatelských soutěží	• Podnikatelské soutěže jsou vnímány jako prvek podnikatelských ekosystémů. • Podnikatelské soutěže fungují jako centra pro propojení podnikatelských ekosystémů, protože spojují podnikatele mezi sebou, s dalšími institucemi, instituce mezi sebou.	kvantitativní	sekundární zdroje
17	**Park, J. E., Pulcrano, J., & Leleux, B. (2020)**	Švýcarsko	vliv podnikatelských soutěží na účastníky	• Účast v podnikatelské soutěži vyžaduje velké množství času, které by budoucí podnikatel mohl použití pro jiné kritické činnosti.	kvantitativní	dotazník
18	**Russell, R., Atchison, M., & Brooks, R. (2008)**	Austrálie	benefity podnikatelských soutěží	• Podnikatelské soutěže jsou primárně zaměřené na vznik začínajících podniků. • Poskytují mnoho výhod, z nichž mezi nejdůležitější byl zařazen rozvoj podnikatelských dovedností, přístup k mentorům, příležitost k vytváření sítí, zvýšené sebevědomí a sklon k podstupování rizika.	kvalitativní	dotazník

19	**Tipu, S. A. A. (2018)**	Spojené Arabské Emiráty	analýza podnikatelských soutěží	• Rostoucí popularita podnikatelských soutěží. • Omezené odborné zdroje - především v rozvíjejících se ekonomikách. • Mnoho výzkumů se zaměřuje na strukturu soutěží, týmů a výhody podnikatelského plánu. • Mezi výhody podnikatelských soutěží se řadí rozvoj dovedností, networking, přístup k mentorům.	kvalitativní	databáze
20	**Cant, M. C. (2018)**	Afrika	analýza podnikatelských soutěží	• Podnikatelské soutěže jako prostředek rozvoje podniků a podnikatelů jsou využívány ve všech zemích - rozvinutých i rozvojových. • Vymezení faktorů úspěchu soutěže.	kvantitativní	sekundární zdroje
21	**McKenzie, D. (2017)**	USA	vliv podnikatelských soutěží na účastníky	• Podnikatelské soutěže jsou považovány za účinný nástroj pro identifikaci podnikatelů s mnohem větším prostorem pro růst, než mají typické mikropodniky.	kvantitativní	dotazník
22	**Watson, K., & McGowan, P. (2018)**	UK	role podnikatelského plánu na podnikání	• Při vstupu do soutěže vnímali účastníci podnikatelský plán jako důležitý. Vnímali jej jako smysluplný nástroj. • Bezprostředně po soutěži byl podnikatelský plán vnímán jako druhotný nástroj. • Šest měsíců po soutěži byl podnikatelský plán považován za nevyužitelný, užitečný pouze v případě potřeby externích stran.	kvalitativní	rozhovory
23	**Passaro, R., Quinto, I., & Thomas, A. (2017)**	Itálie	efektivní podnikatelské učení	• V posledních letech roste množství podnikatelských soutěží. • Realizovány jsou především soukromými subjekty. • Soukromě organizované podnikové soutěže jsou více zaměřené na tržně orientovaný přístup.	smíšený	databáze

Zdroj: vlastní zpracování, 2022

ZÁVĚR

Příspěvek byl zaměřen na význam podnikatelských soutěží z pohledu odborné literatury.
Téma podnikatelských soutěží představuje zajímavé téma, které může mít vliv na úspěšnost nejen začínajících podniků a v mnohých krizových časech i na jejich samotnou existenci. Vzhledem k neustálému rozvoji dat je pro podniky nyní stále více důležité budovat si svou konkurenční výhodu a to nejen v krátkodobém, ale především v dlouhodobém horizontu. Právě podnikatelské soutěže představuje cestu jak získat nové příležitosti, znalosti či dovednosti a dalších vytyčených cílů dosáhnout.
Cílem výzkumu je) teoreticky vymezit podnikatelské soutěže spolu s dalšími pojmy, které s tématem přímo souvisejí, b) analyzovat dostupné články a c) vyvodit relevantní závěry na základě vybraného vzorku dostupné literatury, které přinesou nové poznatky do teorie.
Z analyzovaných článků vyplynulo mnoho výstupů. Některé z nich by jistě mohly být aplikovány na širší spektrum podnikatelských prostředí a zároveň mnoho z nich přestavuje velmi zajímavý a ucelený pohled na zkoumanou problematiku. V největším procentu se vybrané odborné publikace zaměřovaly na tématiku vlivu podnikatelských soutěží na samotné účastníky, ať už z hlediska rozvoje jejich znalostí, dovedností a schopností, tak i z pohledu rozvoje jejich sebevědomí k učinění prvotního kroku k zahájení podnikání. Články se mimo jiné zaměřovaly i na rozvoj podnikatelského prostředí, roli podnikatelského plánu či přínosy podnikatelských soutěží obecně.
Omezení výzkumu bylo jak z pohledu časového srovnávání, tak také z pohledu teritoriálního. Články zkoumaly problematiku podnikatelských soutěží z různých zemí, které poskytují podnikatelským subjektům různé příležitosti. Tento fakt může být limitující při zobecňování výstupů na širší spektrum podniků. V neposlední řadě časová limitace, kdy podnikatelské prostředí se neustále vyvíjí, což se odráží i v rostoucím trendu publikace článků zaměřených na tuto problematiku. Z tohoto důvodu je možné, že výstupy ze článků publikovaných v dřívějším období nebudou již odpovídat aktuální situaci v podnikatelském prostředí.
Možným pokračováním příspěvku by bylo užší zaměření výzkumu na jedno z nalezeného zaměření či zaměření se na konkrétní geografickou oblast.

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EMPLOYER BRAND BUILDING STRATEGY IN THE LABOUR MARKET: METHODICAL PROCEDURE FOR COMPANIES FROM B2B AND B2C MARKETS

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Abstract: The contribution of this study is the identification of dependencies and assumptions about the relationship of selected variables within the employer brand building process and the proposed methodological procedure for employer brand building (the EB Concept) that should contribute to easier implementation of the employer brand building strategy in the labour market. This methodological procedure is based on theoretical knowledge and the basis of available literature in the field of building the employer's brand and the practice of the authors. The methodological procedure can be applied to companies with different characteristics. They can be of different industry, different legal forms, number of employees, operating on the B2B and B2C market. The application of the methodological procedure requires support throughout the company. From the CEO, through top management, middle management to the employees themselves. The authors of the study used first the available literature and information on the process of employer brand building. This was followed by communication with four selected companies, where a unified scheme for introducing the employer brand concept was gradually set up. Two companies were SME, two large companies with more than 250 employees. At the same time, two companies operate in B2B and two in B2C markets. The proposed unified concept of introducing the employer brand is also usable in SMEs and large companies.

Keywords: human resource management, employer brand, Czech Republic, labour market

JEL Classification: M10, M12, M50

INTRODUCTION

According to the authors and their studies concerned, the process of building an employer brand can be divided into several parts. Creating an employer brand begins with diagnosing the employer brand and drawing up an action plan. The company tries to understand its position on the labour market, to analyse its current situation, both from the internal, and external environment. (Kang & Sung, 2017; Dineen et al., 2019; Sharma, 2019)
The importance of the employer brand is noticeable. However, Tkalac Verčič (2021) states that the existing literature does not provide a sufficient construct for small and medium-sized enterprises and for many

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companies the concept of employer branding is still new. Carpentier et al. (2017) explains that employer branding is a young discipline that SMEs are beginning to use to motivate and recruit employees.
Other authors point to the lack of scientific discussion on employer branding (Dabirian et al., 2017; Kucharska & Kowalczyk, 2019). Klimkiewicz and Oltra (2017) add that despite the considerable importance of the employer brand, there are few studies on this topic. Being the employer of choice for a company means being competitive in the labour market and being able to attract potential employees. Although this assumption holds true, there is a lack of research into how to become an employer of choice or an attractive employer (Tkalac Verčič & Pološki Vokić, 2017). There are examples in the literature referred on how to discover the employer brand but there are no more elaborate instructions on how to apply this employer brand in practice, how to further maintain and develop it so that it really serves and fulfils the company´s goals (Frasca & Edwards, 2017; Arasanmi & Krishna, 2019). The literature focuses mainly on the concepts and results obtained by building the employer brand, and research on the attractiveness of the employer brand is still rare (Cheesman, 2017; Carpentier & Van Hoye, 2021).
The aim of this study is the identification of dependencies and assumptions about the relationship of selected variables within the employer brand building process and the proposed methodological procedure for employer brand building (the EB Concept) that should contribute to easier implementation of the employer brand building strategy in the labour market.
The paper consists of four parts. The first part – Literature Review - presents the current form of perception of the employer brand building issue. The second part – Methods – describes the process of creating a methodology for the introduction of the employer brand. The third part – Results and discussion – brings a proposal for a new methodology that emphasizes the creation of a unified methodological procedure for employer brand building. The fourth part – Conclusions – represents a summary of the paper and contains reflections and limits of the paper and possibilities for further research.

1. LITERATURE REFERENCES

The employer brand was first defined by Ambler and Barrow (1996). It was described as a specific package of functional, economic, and psychological benefits that a particular firm provides to its employees to distinguish itself from other employers. The employer´s brand is supposed to simplify the work of the personnel department, it is supposed to help HR managers to focus on priorities, increase productivity, improve recruitment, attract potential candidates, retain current employees, strengthen their engagement, and motivate them, to engage in employer brand communications (Ambler and Barrow, 1996).
The authors pay the attention to the value proposition of the employer brand (exactly the Employer Value Proposition – EVP) (Barbaros, 2020). There is also an opinion in the literature referred that building an attractive employer brand consists in defining a value proposition – what brand benefits can be communicated to selected audience (companies compile a unique proposal of employer values – i.e., benefits to be communicated to potential and current employees) (Tkalac Verčič, 2021; Tkalac Verčič & Pološki Vokić, 2017). The value proposition represents the skeleton of the entire employer brand because it creates a clear vision of how the company wants to be perceived (Carpentier et al., 2019).
Marketing and strategy play an important role in strengthening the employer brand. It is all about communication towards both the internal and external labour market (Kang & Sung, 2017; Ployhart et al., 2017). Carpentier and Van Hoye (2021) developed their own value model design, if an employer brand has a clear vision and mission that expresses its personality and brand value, a value design follows for employees. From the point of view of the EVP, it is essential to examine the company´s culture and environment, employee experience (tangible benefits such as salary but also intangible ones such as awards and career opportunities), company integrity and reputation, internal communication, performance appraisal systems, social responsibility, external marketing, organizational performance, leadership, security, company stability (Arasanmi & Krishna, 2019; Puncheva-Michelotti et al., 2018). Dabirian, Kietzmann

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and Diba (2017) look at the employer brand from five key dimensions: people and culture (job description, goals, work environment and conditions), company (what it offers: vision, mission, mission, values), employer´s reputation (achievements, social activities, CSR), job offer (opportunity, key roles, onboarding, and adaptation process/program), remuneration and development (evaluation, salary and benefits, career).
There is a presumption that employees having a well-managed career satisfied at their work are unlikely to leave the company (Sharma, 2019; Market Research Explained, 2019; Binz Astracha et al., 2018). EVP captures the essence of how a company wants to be perceived in the minds of potential and current employees. So, the unique benefits that make an individual want to become part of the daily life of the company (Theurer et al., 2018). The company should be interested in employees from their start to retirement (Cheesman, 2017; Moore et al., 2020). The authors also focus on the value proposition because it gives the company the opportunity to excel in the labour market. A set of unique values, relevant to all groups concerned, allows the company to differentiate itself from the competition (Klimkiewicz & Oltra, 2017; Miles & McCamey, 2018). A company should know its competition in the labour market and find out the communicated advantages of the competition through surveys (Tkalac Verčič & Sinčić Ćorić, 2018).
It is also possible to find out that the employer brand applies only to large corporations. Therefore, small, and medium-sized enterprises have a difficult role to play in the belief of the company´s management that the systematic building of the employer brand has its meaning and justification (Arijs et al., 2018; Kapuściński et al., 2021). It follows from practice that whether a company does not have its employer brand defined and does not communicate it towards the labour market, it loses potential applicants who do not have enough information about the company and move on towards its competition (Carpentier et al., 2017; Dineen et al., 2019; Frasca & Edwards, 2017).

2. METHODS

The aim of this study is to propose a unified methodological procedure for building the employer brand (EB concept) that should contribute to easier implementation of the strategy of building the employer brand in the labour market.
This methodological procedure is based on theoretical knowledge and available literature in the field of building the employer brand and the authors´ practice. This methodology was verified on four companies from the private sector, operating in B2B and B2C markets, and they were both, SMEs, and large companies. The authors of the study used first the available literature and information on the process of employer brand building. This was followed by communication with four selected companies, where a unified scheme for introducing the employer brand concept was gradually set up. The results of the proposed methodology represent the subject of the presented paper. Two companies were SME, two large companies with more than 250 employees. At the same time, two companies operate in B2B and two in B2C markets.
The application of the methodological procedure (or the whole approach to the concept of building the employer brand) requires support throughout the company. From the CEO, through top management, middle management to the employees themselves. An integral part of successful implementation is the corporate culture of the company. The methodological procedure can be applied to companies with different characteristics. They can be well-known and unknown brands, Czech and foreign, with different business objects, different legal forms, with the number of employees up to 100 employees, but also over 300 employees, operating on the B2B and B2C market, in different locations and in one place, with own marketing, but also without it and with various input funds.

3. RESULTS AND DISCUSSION

In the phase of creating an employer brand, the company must know the answers to the questions: what, to whom and how to communicate. Subsequently, there is talk of an action plan and control tools. The creation of an action plan and the compilation of suitable control tools is included in a separate part, because according

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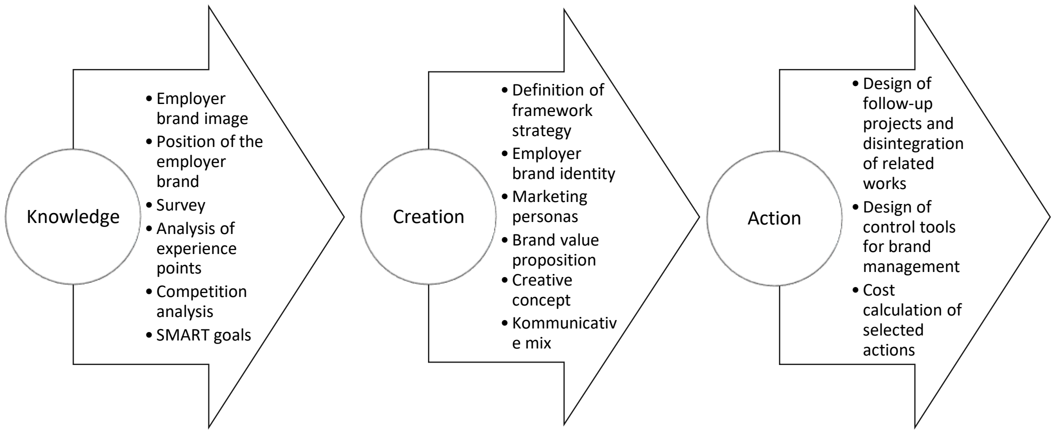
to these two outputs, the employer brand will then be followed and measured, the project approach is considered appropriate. The Gantt chart is most often used to create an action plan. The main phases of the employer brand concept will be formed – the analytical phase, the creation phase, and the implementation phase.
The authors of the paper present a proposal for a methodological procedure for the creation of an employer brand in a logical sequence streamlined into three successive steps with mutual connections.

3.1 Creating an employer brand concept (EB concept/plan)

The creation of the employer brand concept (the EB plan) takes place in three phases: knowledge, creation, and implementation.
• Knowledge – analysis of the current situation and setting the SMART goals.
• Creation – proposal of communication strategy and selection of suitable communication tactics.
• Implementation – creation of an action plan with detailed calculation and design of control tools.
The sequence of individual phases and specific outputs are shown in Figure 1.

Fig. 1: Creating an employer brand concept



Source: own elaboration

3.1.1 Knowledge

The initial analytical phase of plan development focuses on the following main areas (3 C's):
• company – a company in the role of an employer;
• customers – i.e., employees, applicants, or the public;
• competitors – competition and the situation on the labour market.
Thus, it is possible to obtain a comprehensive overview of the current situation of the employer brand in the labour market.
The specific outputs of this phase, which are followed up in other parts of the project, are:
Employer brand image – brand image from the perspective of employees
The image of the employer brand shows how the company is perceived by its employees, what is the image of the employer brand in the minds of the audience. Outputs are evaluated using the Brand Identity Prism emphasizing six key elements – Physique, Personality, Culture, Self-image, Reflection and Relationships.
The position of the employer brand – advantages and disadvantages of the offered job
The position of the employer brand brings an overview of what the job itself gives to employees and takes what pleases them, and on the contrary, they do not like them. The main criterion is then the perception of the uniqueness of work for the company, i.e., the advantages and disadvantages of work. At the same

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time, it is good to ask about the most important values related to work in the company. The company strives to understand its employees and their motives so that it can subsequently improve their job satisfaction and strengthen their commitment. The uniqueness of the job offer is further used in the creation phase (Phase 2) in the design of the value proposition of the employer brand. The outputs of this analysis will be important in creating the positioning of the employer brand in the labour market.

Analysis of experience points – the main moments forming the employer brand

These are important moments in which the employer brand can occur in all phases of the employee cycle. That is, in the role of job seekers, company current employees and former employees. These experience points are unique for each company because each company has specific processes and culture. Experience points include all internal tools, ongoing processes and set company policies. Based on experience points, the experience of each applicant with the brand of the company is formed. Experience points do not refer only to the applicants. The most numerous and at the same time the most experienced group are the company´s own employees, they not only went through the whole process from job search, through selection process to personal experience with the brand, but they are also the main source of stimuli, ideas, and inspiration on how to do things better. The last group that needs to be mentioned in connection with experience points are employees who no longer work in the company, the "alumni". In the individual phases of the life cycle in the company, these are the following activities:

Competition analysis – analysis of experience points and inspiration

Competition is a natural part of any business. It would be short-sighted not to be interested in the competition and not to know with whom the given company has an honour in the same field of operation. From the point of view of employer branding, this is not competition in the market of products and services, but in the labor market. The same applicant may be suitable for more than one company, although each sells a different portfolio of products or offers different services and does not compete because they operate in different product and service markets. The company can get a picture of its competitors by analysing experience points, but it must not be in the viewfinder, but its competitor can be. In a very effective way, they will find out at which points it is better/worse and what the competition is doing differently, eventually better/worse. Competition analysis can take place on the three levels:

Branding – what image and position does the given competition try to create in the labour market.

Recruitment – which employees the competition is looking for and which benefits the job offers, including benefits.

Communication – which tools the competition uses (at least those that are detectable from publicly available sources).

3.1.2 Creation

This part of the project is creative. The aim of this phase is to decide which topics should be focused on within personnel communication. It is also necessary to define the brand identity and the main target audience. Finally, this phase focuses on the style and voice of brand communication, including the choice of appropriate tools.

The specific outputs that will be further used in the creation of the action plan and during all subsequent production of communication messages are the following:

- **definition of the framework strategy – main topics need to be focused on in communication**

Based on the information obtained so far and the set SMART goals, the company should be able to define a clear strategy that will help it get from the current situation to the situation in which the company wants to be.

- **employer brand identity – how the company should be perceived on the labour market**

The identity of the employer brand captures the uniqueness of the company and distinguishes it from other companies. The brand identity of the employer must communicate clearly what the company is. It connects the principle of the company, its history, present and future.

- **marketing persona – to whom the brand speaks**

When the identity is clearly defined, it is necessary to clarify for whom the communication will be created, i.e., to define, based on target audiences, marketing people to whom external personnel communication will be directed. Internal personnel communication is directed to all employees. The marketing persona can be compiled using the Brand Commitment Matrix that translates the brand´s compliance with the "customer" on several levels, i.e., at the personnel level with the employee. The first half of the matrix will be used for the purpose of compiling the marketing persona.

- **The Employer Value Proposition (EVP) – what benefits of the brand can be communicated to the audience**

The Employer Value Proposition (EVP) is a set of all the unique benefits, associations and offers that the company offers in the labour market in exchange for the skills, abilities, and experience of its employees. The position of a given brand in predefined audiences can then be built on these values. The information obtained is valuable because it provides a realistic view of current employees and can give potential employees the certainty that the offered values can really be fulfilled by the company as an employer. On the other hand, it shows topics needed to be discussed in communication. The outputs are also used for content creation within the creative designs. The EVP must be unique, relevant, and compelling because it provides the company with key information to attract and retain other applicants.

- **A creative concept – visual style of communication, brand voice, topics for the communication**

This means a design process. The creation of the creative concept takes place in two phases. First, it is necessary to create a framework of rules for creative creation, and then it is possible to proceed to the design of prototypes of selected communication tools. The rules for creative work contain 3 main areas, namely the visual style of communication, the language style of communication (voice and tone of the brand) and, ideally, the personal slogan (motto). Within prototypes, communication can be created, either online (e.g., communication in social networks, social media, web presentations, etc.) or offline (billboards, leaflets, company magazines, notice boards, etc.). The uniform design must go across all communication channels and all employees must be identified with it.

- **A communication mix – selection of suitable tools for the communication**

The RACE methodology is used to compile the communication mix that ranks the selected tactics into 4 levels – Hit, Influence, Gain and Involvement. The compilation of the communication mix is based on the analysis of experience points, while discussing the existing tools, to which are added new tools that were designed during the creation of the concept. After a predefined period, the company should quality evaluate and optimize its tools for marketing activities and should regularly evaluate which tools are still effective and which are not. These comparisons may be made year-on-year or compared to the previous period.

3.1.3 An action

The final part of creating a plan requires mainly a logical thinking. This means an agency work, where selected action tactics create an action plan and select appropriate control tools. The output of this phase is an action plan for the following period that includes:
proposal of follow-up projects and disintegration of related works,
design of control tools for brand management,
calculation of costs of selected actions.

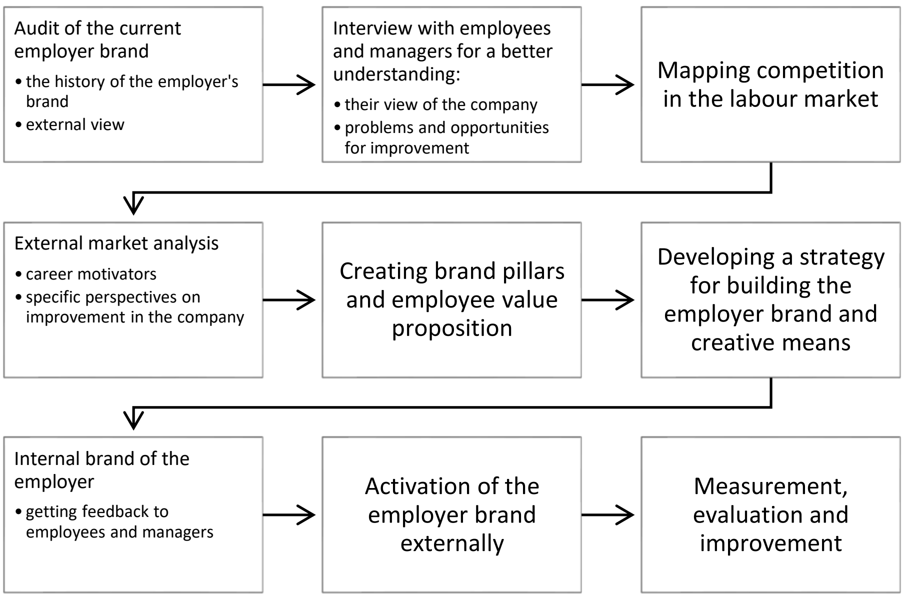
3.2 A marketing plan

Based on the compiled action plan, it is possible to divide the proposed projects into individual phases. In most cases, it is necessary to implement projects in the Phase I., otherwise the company cannot prepare further planning. These include mostly the production of career pages, setting up and implementing activities within internal communication, preparation, and implementation of the first issue of the company magazine and preparation of offline and online advertising. Within the Phase II., the company can start publishing content regularly in the blog section on the career page and on social networks, PPC advertising is launched, and further production takes place. To ensure sufficient content, there are workshops with employees and constant supervision of all activities in terms of support, advice, and analysis. In the next phases, the most effective communication tools are then evaluated, both for external, and internal communication.

3.3 Measurability of goals and success of the employer branding

Randstad (2020) deals with the employer branding in practice and states that in a highly competitive labour market, creating and maintaining a consistent employer brand is an essential tool for attracting and retaining the right employees. The impressive employer brand facilitates the recruitment of the best candidates and increases the loyalty of current employees. Randstad (2020) defines 5 steps to develop a better employer brand. The first step is to evaluate the current situation with managers about the required culture and values of the organization. Here, there must be a unified opinion of all managers, management, and leadership of the company. The second step is the analysis of the current employer brand, where the employer brand is now located and where it is headed. The key is how the company wants to be perceived in the labour market and must be able to successfully translate this idea into all marketing communication. From the second step, the company obtained information about the current situation and set specific goals, in the third step, it sets out a plan for achieving these goals, how to implement and measure them. In the fourth step, Randstad recommends involving its own employees in shaping the employer brand so that they are properly informed and actively involved. Some goals can be achieved quickly, others more slowly. The employer brand is constantly evolving. In the fifth step, it is now possible to spread the employer's brand among the public through social networks, online and offline media and share authentic content that resonates with the target audience and the shared values of the company. The process of creating an employer brand is shown in Figure 2.

Fig. 2: The map of the employer brand



Source: Randstad (2020)

Although Randstad (2020) mentions 5 steps, in graphic terms there are 9 steps that are arranged without further division. Here, it is not stated how to work out the individual inputs.

Brandbakers (2020) helps companies create brand communication, increases the efficiency of the recruitment process, helps bring talented and right people to companies. According to Brandbakers (2020), the process of creating an employer brand has three phases – Knowledge, Strategy and Activation. In the knowledge phase, it is found out why the given people work for the company, what makes the company´s offer unique, what criteria decide when deciding on the company, who is the company´s competition and what kind of recruitment communication the competition has. Again, the analytical phase is emphasized that gives a clear picture of the company, employees, applicants, and the competition. The strategy decides which communication channels will be used for the target audience. Activation then represents the very creation of the proposed tactics and activities. Compared to the proposed methodological procedure for building the employer brand in this study, Brandbakers (2020) needs two phases (Knowledge and Strategy) to create a concept, because the third phase – Activation, already represents the creation of proposed tactics and activities. pages, printed recruitment materials, profiles on social networks, etc.).

CONCLUSION

The aim of this study was to design a unified methodological procedure for building the employer brand (EB concept) that should contribute to easier implementation of the employer brand building strategy in the labor market. The proposal of a suitable methodological procedure for the creation of the employer brand is proposed in the paper in logical connections with the use for companies operating in both, B2B and B2C markets. The proposed unified concept of introducing the employer brand is also usable in SMEs and large companies. The proposed methodology was subsequently verified in four companies. The methodology consists of 3 phases: 1) Knowledge – analysis of the current situation and setting SMART goals, 2) Creation – design of communication strategy and selection of appropriate communication tactics, 3) Implementation – creation of an action plan with detailed calculation and design of control tools.

The competition among employers may increase due to talent and quality human resources shortages. The paper points out that companies must realize the importance of quality employees, both current and potential. Companies ask themselves questions about how to stand out from other companies and how to be an attractive employer in the long term. They start looking new strategies in the field of human resources management. The paper brings a new approach in human resource management, which is employer brand building. Employer branding is a long-term strategy that helps companies in a competitive environment attract quality potential employees while retaining current key employees. Earlier approaches to human resource management understood employees only as a factor of production and considered assets and capital more important. Over time, this opinion has changed, and current literature considers human capital to be the most valuable. Human capital should be seen as an important resource creating competitive advantage. The paper points out that the introduction of the employer brand concept in the company is also beneficial for by reason most of the strategies used by HR professionals are short-term and reactively designed (that is, when there is a problem, a solution is found), but the employer brand is a long-term and proactive solution that attempts to prevent a problem, created to provide stability to the firm.

The benefits of this paper can be used both, for the management of small and medium-sized enterprises, and for large companies. Certain limitations can be seen in the application to multinational companies, where parent companies often pass on their own methodology for building the employer brand to their subsidiaries. The authors see further research as focusing on organizations in the field of state administration.

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MODELY ANALÝZY OBALU DAT S FIXNÍM SOUČTEM VÝSTUPŮ
DATA ENVELOPMENT ANALYSIS MODELS WITH FIXED-SUM OUTPUTS

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Abstract:
Traditional data envelopment analysis (DEA) models do not consider any relations with respect to the sum of values of outputs. In many real applications, the sum of outputs is predetermined and cannot be changed. In this paper, main models considering fixed-sum outputs are formulated and discussed their properties. They usually proceed in two steps. The first step consists in deriving a new efficient frontier, usually called equilibrium efficient frontier. This frontier is computed in such a way that the values offixed-sum outputs for all units are modified to reach maximum efficiency of all units. In the second step, the efficiency score of the original units is derived with respect to the new frontier. This characteristic allows complete ranking of the units. The results of the model are illustrated on the evaluation of efficiency ofcountries attending Winter Olympic Games 2022. They are compared with traditional DEA models.

Keywords: data envelopment analysis, fixed-sum outputs, ranking, efficiency

JEL Classification: C44
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1. ÚVOD
Tradiční modely analýzy obalu dat (DEA modely) představují nástroje pro hodnocení efektivnosti a výkonnosti souboru homogenních produkčních jednotek, které ve svých aktivitách spotřebovávají vícenásobné zdroje (vstupy) a vytvářejí vícenásobné efekty (výstupy). Uvažujme soubor n homogenních produkčních jednotek, které spotřebovávají m vstupů a produkují r výstupů. Označme x_{ij}, $i = 1, \dots, n$, $j = 1, \dots, m$, nezápornou hodnotu j-tého vstupu spotřebovaného i-tou jednotkou, a dále y_{ik}, $i = 1, \dots, n$, $k = 1, \dots, r$, nezápornou hodnotu k-tého výstupu i-té jednotky. V DEA modelech je míra efektivnosti i-té jednotky definována jako podíl váženého součtu výstupů a váženého součtu vstupů, tj.

$$\frac{\sum_{k=1}^{r} u_k y_{ik}}{\sum_{j=1}^{m} v_j x_{ij}} \tag{1}$$

kde u_k, $k = 1, \dots, r$ a v_j, $j = 1, \dots, m$, jsou kladné váhy jednotlivých výstupů, resp. vstupů. Základní DEA model formulovaný v (Charnes et al., 1978), často označovaný jako CCR model, maximalizuje míru efektivnosti jedné konkrétní jednotky daného souboru (označme její index jako q) za předpokladu, že míry efektivnosti všech ostatních jednotek jsou omezeny hodnotou 1. Tento optimalizační model lze tedy zapsat takto:
maximalizovat

$$\theta_q = \frac{\sum_{k=1}^{r} u_k y_{qk} + \mu}{\sum_{j=1}^{m} v_j x_{qj}},$$

za podmínek (2)

$$\frac{\sum_{k=1}^{r} u_k y_{ik} + \mu}{\sum_{j=1}^{m} v_j x_{ij}} \le 1, \qquad i = 1,\ldots,n,$$

$$u_k \ge \varepsilon, v_j \ge \varepsilon, \mu = 0,$$

kde ∑ je infinitezimální konstanta, zajišťující pozitivitu vah, a ⌠ je proměnná, která je u CCR modelu rovna 0. Banker et al. (1984) upravili model (2) pro předpoklad variabilních výnosů z rozsahu. Pro variabilní výnosy z rozsahu je proměnná ⌠ volná (může být tedy i záporná), jinak se model (2) nemění. Často je tento model potom označovaný jako BCC model. Účelová funkce modelu (2) není lineární, ale pomocí Chanesovy-Cooperovy transformace lze snadno na lineární model převést. Podrobněji o tradičních DEA modelech např. v Dlouhý et al. (2018).

Tradiční DEA modely předpokládají, že při projekci na efektivní hranici, která je odhadnutá daným modelem, mohou být vstupy a výstupy hodnocených jednotek volně modifikovány. Uvažujeme-li ale, že všechny nebo některé výstupy modelu mají pevně daný součet v rámci celého souboru jednotek, jsou tradiční DEA modely prakticky nepoužitelné, protože projekce na efektivní hranici pevně daný součet výstupů neuvažuje. V posledních letech byla proto modelům s fixním součtem výstupů věnována značná pozornost. Yang et al. (2011) formulovali model, který minimalizuje vážený součet hodnot, o které se snižují fixní výstupy všech jednotek (kromě aktuálně hodnocené), aby se hodnocená jednotka stala efektivní. Yang et al. (2015) zavedli pojem rovnovážná efektivní hranice a formulovali model, jak této hranice dosáhnout. Tímto modelem se budeme podrobněji zabývat v následující části tohoto příspěvku. Fang (2015) a Zhu et al. (2017) koncept rovnovážné efektivní hranice upravili a rozšířili. Li et al. (2021) aplikují modely s fixním součtem výstupů pro hodnocené efektivnosti států, které se účastnily Zimních olympijských her 2018. Je evidentní, že součet výstupů (počty získaných medailí) jsou v tomto případě fixní. Oproti předchozím pracím zde autoři navíc rozšířili koncept rovnovážné efektivní hranice pro případ dvoustupňových DEA modelů.

Další část tohoto příspěvku obsahuje formulaci modelu rovnovážné efektivní hranice a její použití pro hodnocení efektivnosti pro případ výstupů s fixním součtem. Výhodou modelu je, že poskytuje kompletní uspořádání všech hodnocených jednotek. Odpadá tak nutnost aplikovat různé modely super efektivnosti, které se hojně používají při práci s tradičními DEA modely – Andersen a Petersen (1993), Tone (2002), Jablonský (2012), apod.

2. ROVNOVÁŽNÁ EFEKTIVNÍ HRANICE

Označme r_1 počet výstupů, které nejsou omezené, a r_2 počet výstupů, jejichž součet je fixní. Jsou-li hodnoty těchto výstupů z_{il}, $i = 1,\ldots, n$, $l = 1,\ldots, r_2$, potom tedy musí platit $\sum_{i=1}^{n} z_{il} = Z_l$, kde Z_l je daný součet pro l-tý výstup. Úpravou tradičního DEA modelu (2) dostáváme model pro případ, že součet některých výstupů je fixní takto:

maximalizovat

$$\theta_q = \frac{\sum_{k=1}^{r_1} u_k y_{qk} + \sum_{l=1}^{r_2} w_l z_{ql} + \mu}{\sum_{j=1}^{m} v_j x_{qj}},$$

za podmínek (3)

$$\frac{\sum_{k=1}^{r_1} u_k y_{ik} + \sum_{l=1}^{r_2} w_l z_{il} + \mu}{\sum_{j=1}^{m} v_j x_{ij}} \le 1, \qquad i = 1,\dots,n,$$

$$u_k \ge \varepsilon, v_j \ge \varepsilon, w_l \ge \varepsilon.$$

Model (Yang et al., 2015) odvozuje rovnovážnou efektivní hranici na základě minimalizace váženého součtu proměnných, které navyšují hodnoty fixních výstupů tak, aby byly všechny jednotky souboru efektivní. Model lze zapsat následovně:
minimalizovat

$$\sum_{i=1}^{n} \sum_{l=1}^{r_2} w_l \left|\delta_{il}\right|,$$

za podmínek (4)

$$\frac{\sum_{k=1}^{r_1} u_k y_{ik} + \sum_{l=1}^{r_2} w_l (z_{il} + \delta_{il}) + \mu}{\sum_{j=1}^{m} v_j x_{ij}} = 1, \qquad i = 1,\dots,n,$$

$$\sum_{i=1}^{n} \delta_{il} = 0, \qquad l = 1,\dots,r_2,$$

$$z_{il} + \delta_{il} \ge 0, \qquad i = 1,\dots,n,\ l = 1,\dots,r_2,$$

$$u_k \ge \varepsilon, v_j \ge \varepsilon, w_l \ge \varepsilon,$$

$$\delta_{il} - neomezené.$$

Proměnné ™$_{il}$ představují změnu hodnot fixních výstupů tak, aby byla *i*-tá jednotka efektivní. To zajišťuje první sada omezujících podmínek. Je zřejmé, že pro udržení fixního součtu výstupů musí být součet těchto proměnných nulový. Poslední sada podmínek zajišťuje nezápornost upravených fixních výstupů. Účelová funkce minimalizuje vážený součet absolutních hodnot ™$_{il}$ proměnných.
Model (4) je nelineární jak v účelové funkci, tak i v první sadě omezujících podmínek. Je možné jej ovšem poměrně snadno linearizovat. Stačí použít substituci $d_{il} = w_{il}\delta_{il}$. Potom účelová funkce minimalizuje součet absolutních hodnot d_{il} proměnných, což lze linearizovat použitím dvojice odchylkových proměnných, pro které už platí podmínky nezápornosti. Linearizovaný model je:
minimalizovat

$$\sum_{i=1}^{n} \sum_{l=1}^{r_2} (d_{il}^{-} + d_{il}^{+})$$

za podmínek (5)

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$$\sum_{k=1}^{r_1} u_k y_{ik} - \sum_{j=1}^{m} v_j x_{ij} + \sum_{l=1}^{r_2} (w_l z_{il} + d_{il}^- - d_{il}^+) + \mu = 0, \qquad i = 1,\dots,n,$$

$$\sum_{i=1}^{n} d_{il}^- - d_{il}^+ = 0, \qquad l = 1,\dots,r_2,$$

$$w_l z_{il} + d_{il}^- - d_{il}^+ \geq 0, \qquad i = 1,\dots,n,\ l = 1,\dots,r_2,$$

$$u_k \geq \varepsilon, v_j \geq \varepsilon, w_l \geq \varepsilon,$$

$$d_{il}^- \geq 0, d_{il}^+ \geq 0.$$

Po vyřešení modelu (5) lze dosazením do substitučních vztahů již snadno získat optimální hodnoty proměnných δ_{il}^*. S jejich využitím se získá míra efektivnosti q-té jednotky θ_q jako vzdálenost původních hodnot od rovnovážné efektivní hranice takto:

maximalizovat

$$\theta_q = \frac{\sum_{k=1}^{r_1} u_k y_{qk} + \sum_{l=1}^{r_2} w_l z_{ql} + \mu}{\sum_{j=1}^{m} v_j x_{qj}},$$

za podmínek (6)

$$\frac{\sum_{k=1}^{r_1} u_k y_{ik} + \sum_{l=1}^{r_2} w_l (z_{il} + \delta_{il}^*) + \mu}{\sum_{j=1}^{m} v_j x_{ij}} \leq 1, \qquad i = 1,\dots,n,$$

$$u_k \geq \varepsilon, v_j \geq \varepsilon, w_l \geq \varepsilon.$$

Při aplikaci uvedených modelů je třeba si uvědomit, že výpočet probíhá ve dvou stupních. V prvním z nich se odhaduje rovnovážná efektivní hranice řešením jedné lineární optimalizační úlohy (5). Druhá fáze řeší pro každou jednotku daného souboru jednu lineární optimalizační úlohu (6), které vede k získání míry efektivnosti jako vzdálenosti od rovnovážné efektivní hranice.

3. HODNOCENÍ STÁTŮ NA ZOH 2022

Zimní olympijské hry (ZOH) 2022 se konaly v únoru 2022 v Pekingu. Během všech soutěží bylo rozděleno 109 sad medailí (zlato, stříbro, bronz). Po skončení podobných sportovních (nejen) událostí bývají účastnické státy řazeny podle počtu získaných medailí. Pro tento účel se používá téměř výhradně lexikografické řazení, tzn. státy s vyšším počtem „lepších“ medailí jsou v uspořádání výše. V celé řadě článků byly analyzovány možnosti použití DEA modelů pro uspořádání států na základě různých ukazatelů včetně aplikací pro uspořádání států podle počtu medailí na Letních či Zimních olympijských hrách. Za všechny podobné studie je možné uvést práci (Jablonský, 2018).

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Tab. 1: Vstupní data

Stát	Populace	HDP	Zlato	Stříbro	Bronz
Norsko	5	366	16	8	13
Německo	82	3780	12	10	4
Čína	1370	14860	9	4	2
USA	320	20807	8	10	7
Švédsko	10	529	8	5	5
Nízozemsko	17	886	8	5	4
Rakousko	9,5	433	7	7	4
Švýcarsko	8	708	7	2	6
ROC	142	1464	6	12	14
Francie	66	2551	5	7	2
Kanada	35	1600	4	8	14
Japonsko	127	4911	3	6	9
Itálie	60	1848	2	7	8
Korea	50	1587	2	5	2
Slovinsko	2	51	2	3	2
Finsko	5,5	268	2	2	4
Nový Zéland	5	194	2	1	0
Austrálie	23	1334	1	2	1
Velká Brit.	63	2638	1	1	0
Maďarsko	10	150	1	0	2
Belgie	11	503	1	0	1
Česko	10,5	242	1	0	1
Slovensko	5,5	102	1	0	1
Bělorusko	9,5	58	0	2	0
Španělsko	47	1247	0	1	0
Ukrajina	46	142	0	1	0
Estonsko	1,5	30	0	0	1
Lotyšsko	2	33	0	0	1
Polsko	39	581	0	0	1

Zdroj: Vlastní zpracování

V naší ilustraci budeme uvažovat poslední ZOH 2022, kterých se účastnilo celkem 91 států, ale pouze 29 z nich získalo alespoň jednu medaili. Pro uspořádání podle počtu medailí budeme tedy pracovat s 29 státy (jednotkami), u kterých budou uvažovány tři výstupy – počty zlatých, stříbrných a bronzových medailí. Je zřejmé, že u všech těchto výstupů se jedná o charakteristiky s pevně daným součtem. V našem případě 109 pro každý z výstupů. Protože má každá z medailí jinou váhu, doplnili jsme modely (5) a (6) o podmínky, že váhy, odpovídající zlatým medailím jsou alespoň dvojnásobkem vah pro stříbrné medaile a ty jsou zase minimálně dvojnásobkem vah pro medaile bronzové.

Pokud bychom se chtěli ve výsledku co nejvíce přiblížit běžně používanému lexikografickému uspořádání, potom bychom zvolili DEA model bez explicitních vstupů, resp. případ, kdy všechny hodnocené jednotky mají jeden identický vstup. Pro naši ilustraci jsme ale zvolili hodnocení zemí podle jejich potenciálu, které měříme

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celkovou populací daného státu (miliony obyvatel) a jeho HDP (miliardy USD). Tabulka 1 obsahuje kompletní vstupní data – státy jsou zde uspořádány lexikograficky.

Tab. 2: Výsledky

	Stát	Zlato	Stříbro	Bronz	Model (6)	Pořadí	CCR	Pořadí
1	**Norsko**	0,914	0,000	0,000	21,920	2	3,175	1
2	**Německo**	9,513	0,000	0,000	1,788	14	0,076	17
3	**Čína**	37,973	4,000	2,000	0,275	25	0,014	25
4	**USA**	18,190	67,667	7,000	0,250	26	0,011	26
5	**Švédsko**	0,000	2,655	0,000	7,918	4	0,351	4
6	**Nízozemsko**	0,000	4,449	0,000	4,725	8	0,210	10
7	**Rakousko**	0,000	2,180	0,000	9,642	3	0,410	3
8	**Švýcarsko**	0,764	2,000	0,000	5,546	6	0,273	5
9	**ROC**	3,956	0,000	0,000	3,042	11	0,135	12
10	**Francie**	5,000	2,893	0,000	1,319	16	0,054	19
11	**Kanada**	4,000	0,055	0,000	1,995	13	0,105	14
12	**Japonsko**	9,388	6,000	9,000	0,485	22	0,024	24
13	**Itálie**	1,200	7,000	0,000	1,174	17	0,054	18
14	**Korea**	2,000	4,065	0,000	1,117	18	0,044	22
15	**Slovinsko**	0,000	0,251	2,000	26,847	1	1,256	2
16	**Finsko**	0,674	0,000	0,000	4,468	9	0,221	9
17	**Nový Zéland**	0,490	0,000	0,000	5,100	7	0,236	7
18	**Austrálie**	2,340	2,000	1,000	0,599	21	0,026	23
19	**Velká Brit.**	6,153	1,000	0,000	0,225	27	0,009	27
20	**Maďarsko**	0,394	0,000	0,000	2,550	12	0,154	11
21	**Belgie**	1,000	0,527	1,000	0,792	20	0,045	21
22	**Česko**	0,622	0,000	0,000	1,612	15	0,095	16
23	**Slovensko**	0,265	0,000	0,000	3,786	10	0,224	8
24	**Bělorusko**	0,000	0,333	0,000	6,014	5	0,251	6
25	**Španělsko**	2,481	1,000	84,000	0,157	28	0,006	28
26	**Ukrajina**	0,000	0,926	0,000	1,080	19	0,051	20
27	**Estonsko**	0,075	0,000	1,000	0,433	23	0,106	13
28	**Lotyšsko**	0,084	0,000	1,000	0,394	24	0,097	15
29	**Polsko**	1,525	0,000	1,000	0,022	29	0,005	29

Zdroj: Vlastní zpracování

Tabulka 2 obsahuje výsledky získané aplikací modelů (5) a (6). Neuvažujeme-li sloupce s lexikografickým pořadím a názvem státu, jsou v dalších třech sloupcích informace o výstupech pro dosažení rovnovážné efektivní hranice – tyto souřadnice jsou získány modelem (5), doplněným o váhová omezení. V tomto případě může být oprávněná námitka, že by měly být tyto hodnoty celočíselné (počty medailí), potom by ale model (5) nemohl mít v obecném případě celočíselné přípustné řešení. Poslední dvě dvojice sloupců přinášejí míru efektivnosti vypočtenou modelem (6) resp. tradičním CCR modelem, a současně pořadí států podle této míry efektivnosti. U CCR modelu jsou u dvou států (Norsko a Slovinsko) míry super efektivnosti vypočtené Andersenovým a Petersenovým modelem. Tyto dva státy vyšly jako jediné efektivní. Výsledky nejsou překvapující. Na prvních dvou místech vyšlo s odstupem Norsko a Slovinsko. Obě země dosáhly velmi dobrých výsledků, i když v absolutních číslech Norsko mnohem lepších. Slovinsko má však nižší počet obyvatel a výrazně nižší HDP. Podle modelu s fixním součtem výstupů vychází tak Slovinsko jako první. Tradiční CCR model, resp. jeho super efektivní modifikace, upřednostňuje Norsko. Překvapivé není ani skutečnost, že státy s velkým počtem obyvatel (především Čína a USA) si oproti lexikografickému uspořádání výrazně pohoršily.

ZÁVĚR

Modely s fixním součtem výstupů představují poměrně novou kategorii modelů pro hodnocení efektivnosti a výkonnosti souboru produkčních jednotek. V článku je představený model, jehož výhoda spočívá v tom, že pro dosažení rovnovážné efektivní hranice stačí řešit jedinou lineární optimalizační úlohu. Aplikace, která je použita pro představení modelu, je spíše ilustrativní. Je zřejmé, že modely s fixním součtem výstupů mají ekonomicky zajímavější aplikace, například při rozdělování pevně daného objemu prostředků mezi podřízené jednotky.

V dalším výzkumu v této oblasti by bylo možné se zaměřit na zajímavé aplikace, směřující do ekonomické oblasti. Modely a koncept rovnovážné efektivní hranice by mohl být rozšířený o pojem *α*-efektivnosti, kde *α* je minimálně požadovaná míra efektivnosti všech jednotek souboru. V takovém případě by bylo možné uvažovat rovnovážnou efektivní hranici i pro případ celočíselných proměnných.

Poděkování

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VPLYV COVID-19 A KONFLIKTU NA UKRAJINE NA VÝNOS A RIZIKO AKCIÍ INDEXU DJIA
THE IMPACT OF COVID-19 AND THE CONFLICT IN UKRAINE ON THE RETURN AND RISK OF DJIA STOCKS

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Abstract: Every crisis has an impact on the global economy, on national economies and also causes disruptions in the financial market. Economic theory expects repeated economic crises. In the past, economic crises were mostly a rare phenomenon. Currently, the frequency of their outbreaks is higher. Therefore it can be assumed with certainty that the crisis caused by Covid-19 and the crisis caused by the conflict in Ukraine are not the last global crises that will affect the global economy and, therefore, the world financial and stock markets. In history, every recession in the stock markets was only temporary, so investing during a crisis is also of great opportunity, even if it has its peculiarities. When investing, the investor must emphasize a certain level of risk and the expected returns. The contribution aims to present the possible use of income and risk analysis in investment operations by investors so that an unquestionable certainty of the invested financial amount and a satisfactory return are ensured. The analysis of these indicators was carried out on historical data of selected components of the stock index Dow Jones Industrial Average (DJIA) in the pre-crisis period, in the crisis period caused by the Covid-19 virus, and in the crisis period caused by the war conflict in Ukraine. The presented approach of analysing the returns and risk of DJIA index shares provides the investor with an effective tool for deciding on the placement of available funds on the financial market in individual segments in all three monitored periods.

Keywords: return, risk, CVaR, CDDaR, crisis Covid-19, conflict in Ukraine

JEL Classification: G110, G150

ÚVOD

Každá kríza ovplyvňuje globálnu ekonomiku, národné ekonomiky a spôsobuje aj otrasy na finančnom trhu. Napríklad, v čase krízy v roku 2008 stratila ropa viac ako 70% zo svojej hodnoty (cena ropy klesla z viac ako 147 dolárov za barel na približne 36 dolárov za barel). Dopady na finančný trh potvrdzuje skutočnosť, že v tom istom období bol akciový trh 20% pod historickými maximami už 12 mesiacov pred kolapsom (Pekár, Berezina, & Reiff, 2022).

V období krízy spôsobenej vírusom Covid-19 sa cena ropy prepadla dvakrát rýchlejšie ako tomu bolo počas krízy v roku 2008. Vírus Covid-19 vyvolal celosvetovú krízu, ktorá priamo ovplyvnila ekonomiky jednotlivých krajín a aj akciové trhy (veľký prepad zaznamenali aj drahé kovy, komodity, ale aj kryptomeny). Dopady tejto krízy spôsobili výrazný prepad hodnoty investícií, na akciových trhoch to bolo možné pozorovať na dočasnom poklese cien akcií (Sukharev, 2020), (Pekár et al., 2022).

V Európskej únii, ale aj v krajinách celého sveta došlo k prudkému nárastu cien energie. V dôsledku konfliktu na Ukrajine sa ceny palív zvýšili ešte viac a rozhodnutie Ruskej federácie pozastaviť dodávky plynu do niekoľkých členských štátov EÚ situáciu ovplyvnilo ceny energie ešte viac (napr. nebývalý nárast cien plynu na svetových trhoch – o viac ako 170 % v roku 2021). Vojenský konflikt na Ukrajine priamo ovplyvňuje aj celosvetovú potravinovú bezpečnosť a cenovú dostupnosť potravín (podľa Organizácie Spojených národov boli svetové ceny potravín v máji 2022 takmer o 30 % vyššie ako pred rokom.). Globálne akciové trhy taktiež zažívajú turbulentný vývoj, pretože investori nevedia predpokladať ďalší vývoj.
Cieľom príspevku je prezentovať možné využitie analýzy výnosov a rizík akcií indexu DJIA. Analýza bola realizovaná na historických údajoch (denné dáta) komponentov akciového indexu Dow Jones Industrial Average (DJIA) v predkrízovom období, ako aj v obdobiach kríz spôsobených vírusom Covid-19 a konfliktom na Ukrajine. DJIA je index akcií tridsiatich amerických spoločností pozostávajúci z najväčších a najširšie verejne obchodovaných akcií v Spojených štátoch. Na základe historických cien (denné údaje) zvolených akcií obsiahnutých v akciovom indexe DJIA boli realizované analýzy vplyvu pandémie Covid-19 a ukrajinského konfliktu na výnosy a riziká pre tri obdobia:
1. Vstupné dáta za Obdobie 1 od 1.1.2018 do 31.12.2019 – pred výskytom Covid-19,
2. Vstupné dáta za Obdobie 2 od 1.1.2020 do 23.2.2022 – výskyt Covid-19,
3. Vstupné dáta za Obdobie 3 od 24.2.2022 do 25.8.2022 – ukrajinský konflikt.

1. INVESTOVANIE V KRÍZOVOM OBDOBÍ

Je zrejmé, že kríza spôsobená vírusom Covid-19 a kríza spôsobená konfliktom na Ukrajine nie sú posledné globálne krízy, ktoré mali dopad na celosvetovú ekonomiku a teda aj na svetové finančné a akciové trhy. Podľa Deutsche Bank existujú minimálne štyri možné krízové scenáre, ktoré ohrozia svetovú ekonomiku pravdepodobne už v nasledujúcej dekáde. Môžu to byť veľká pandémia chrípky, globálna vojna, globálna následky erupcie sopky, resp. slnečná erupcia (Reid, Templeman, & Allen, 2020). Za najviac pravdepodobný scenár považuje Deutsche Bank výpadok elektrickej energie spôsobený slnečnou erupciou alebo svetový vojenský konflikt.
Dopady krízy spôsobenej vírusom Covid-19 a krízy z konfliktu na Ukrajine spôsobili výrazný prepad hodnoty investícií, na akciových trhoch to možno pozorovať dočasným poklesom cien akcií. Dobrým predpokladom na úspešné prekonanie krízy je efektívne rozloženie aktív investora a vytvorenie takého portfólia, ktoré umožňuje znižovať riziko strát pri vzniku neočakávaných a nepredvídateľných situácií.
Investor musí pri rozhodovaní o tvorenom portfóliu klásť dôraz na očakávané výnosy a riziko, pomocou ktorých sa vie vyjadriť o atraktívnosti tvoreného portfólia. Všeobecne sa investor snaží zostaviť taký typ portfólia cenných papierov, ktoré prinášajú vysoký zisk a zároveň sú rozdielne (diferencované) tak, aby sa minimalizovala možná strata z rizika. Problém je v tom, že tieto dva ciele sú často protichodné, a preto investor musí zvážiť kompromis, ktorý je ochotný prijať.
Investor v snahe dosiahnuť čo najvyšší výnos musí akceptovať určitú úroveň rizika. Riziko pritom reprezentuje možnosť, že sa skutočný výnos odlišuje od očakávaného výnosu. Riziko teda predstavuje vo svojej podstate neistotu budúcich príjmov. Určité riziká, no nie všetky, možno znížiť diverzifikáciou investičných prostriedkov. Investor sa môže rozhodnúť umiestniť svoje investičné prostriedky namiesto do jedného cenného papiera, do veľkého množstva cenných papierov a vytvoriť tak diverzifikované portfólio. Základom diverzifikácie je teda alokácia investícií do rôznych variácií aktív s cieľom minimalizovať riziko spojené s očakávanými výnosmi jednotlivých cenných papierov.

2. VOĽBA FINANČNÝCH AKTÍV PRE VYTVORENIE PORTFÓLIA A ANALÝZA VPLYVU KRÍZY NA INVESTIČNÚ STRATÉGIU

Rôzne finančné portfóliá možno vytvoriť kombináciou rozličných finančných aktív. Finančné aktíva vo všeobecnosti predstavujú hotovostné účty v banke alebo hodnota účtov cenných papierov, dlhopisov

a iných nehmotných aktív jednotlivca alebo inštitúcií. Každý investor môže investovať do ľubovoľného finančného aktíva, ale mal by pritom rešpektovať základné navzájom poprepletané faktory, ktorými sú výnos, riziko a likvidita daného aktíva. Rozhodnutie o spôsobe rozloženia finančných aktív má zásadný vplyv na celkovú výkonnosť vytvoreného portfólia.
Rozhodovanie investora o finančných investíciách by malo byť založené na analýze s cieľom zabezpečenia určitej bezpečnosti vloženej finančnej čiastky a takisto zodpovedajúceho uspokojivého výnosu. Jeho cieľom je teda vytvorenie vhodného portfólia. Výnosnosť vytvoreného portfólia možno vypočítať ako vážený priemer výnosov jednotlivých finančných aktív, ktoré tvoria portfólio, pričom váhy sú tvorené podielmi jednotlivých druhov finančných aktív.
Aby teda investor nemusel sledovať veľké množstvo rôznych druhov akcií, môže sa orientovať na existujúce akciové indexy. Akciové indexy vo všeobecnosti predstavujú dôležitý ukazovateľ vývoja svetového hospodárstva, pretože poskytujú informáciu o vývoji určitej časti trhu s akciami alebo celého trhu ako celku. Využívajú sa tiež ako meradlo priemernej výnosnosti konkrétneho trhu (benchmark). Akciový index je bezrozmerný indikátor akciového trhu, ktorý koncentruje pohyb kurzov jednotlivých akcií do jedného súhrnného čísla, a má preto výpovednú hodnotu o tendencii celého trhu.
Pre porovnanie vplyvu ochorenia Covid-19 a ukrajinského konfliktu boli vybrané komponenty cenovo váženého akciového indexu Dow Jones Industrial Average (DJIA) , ktorý je jedným z najznámejších svetových akciových indexov. DJIA je index akcií tridsiatich amerických spoločností pozostávajúci z najväčších a najširšie verejne obchodovaných akcií v Spojených štátoch.
V našej analýze sme vybrali nasledujúce akcie obsiahnuté v Indexe Dow Jones Industrial Average (DJIA), a to Apple Inc. (AAPL), Amgen, Inc. (AMGN), American Express Company (AXP), Boeing (BA), Caterpillar Inc. (CAT), Salesforce, Inc. (CRM), Cisco Systems (CSCO), Chevron Corporation (CVX), The Walt Disney Company (DIS), Goldman Sachs (GS), The Home Depot (HD), Honeywell International Inc. (HON), IBM (IBM), Intel (INTC), Johnson & Johnson (JNJ), JPMorgan Chase (JPM), The Coca-Cola Company (KO), McDonald's (MCD), 3M (MMM), Merck & Co. (MRK), Microsoft (MSFT), Nike, Inc. (NKE), Procter & Gamble (PG), The Travelers Companies (TRV), UnitedHealth Group (UNH), Visa Inc. (V), Verizon Communications (VZ), Walgreens Boots Alliance Inc. (WBA), Walmart (WMT).
Zloženie indexu DJIA nie je v súčasnosti také industriálne, ako indikuje historický názov indexu. O jeho kompozícii rozhoduje predstavenstvo the Wall Street Journal. Zloženie indexu, teda výber spoločností tvoriacich DJIA je do určitej miery subjektívne. Dve tretiny vybraných spoločností sú výrobcovia priemyselného a spotrebného tovaru. Ostatné odvetvia sú reprezentované rozličnými odbormi ako sú finančné služby, zábavný priemysel a informačné technológie. Aj keď sa výber spoločností sa od založenia indexu v roku 1896 menil, jeho účel zostáva stále rovnaký – poskytnúť jednoduchý a reprezentatívny pohľad na americkú ekonomiku.
Na základe historických cien (denné dáta) zvolených akcií obsiahnutých v akciovom indexe DJIA boli realizované porovnania a analýzy ich správania sa v USA v období pred príchodom pandémie Covid-19, v jej priebehu a v priebehu ukrajinského konfliktu. Pretože autori chceli analyzovať správanie sa akciového indexu DJIA pred a počas pandémie Covid-19 a v období ukrajinského konfliktu, predpokladali tri prípady - časové obdobia definované v úvode.
DJIA je index zložený z akcií tridsiatich najväčších a najširšie verejne obchodovaných akcií amerických spoločností v Spojených štátoch, na analýzu bolo použitých len 29 akcií, ktorých denné údaje boli k dispozícii.

2.1 Výnos aktív

Ak uvažujeme dĺžku sledovaného obdobia *T,* pre jedno obdobie *t* možno vypočítať relatívnu mieru výnosu r_t medzi obdobiami t a $t-1$

$$r_t = \frac{P_t - P_{t-1}}{P_{t-1}}, \qquad (1)$$

kde P_t cena aktíva v čase $t = 1,2, \dots T$.

Následne mieru kumulovaného výnosu aktíva v čase *t* možno vyjadriť ako

$$y_t = \frac{P_t - P_1}{P_1}, \tag{2}$$

Priemerný denný výnos aktíva, na základe hodnoty kumulovaného výnosu je

$$E = \left(1 + y_T\right)^{\frac{1}{T}} - 1, \tag{3}$$

2.2 Miery rizika aktív

Jednou z mier rizika je aj miera tzv. podmienenej hodnoty v riziku (CVaR z angl. Conditional Value-at-Risk). Táto miera rizika je závislá na zvolenej úrovni spoľahlivosti $\alpha \in \langle 0, 1 \rangle$. CVaR možno určiť ako strednú hodnotu z najhorších αT hodnôt vektora výnosov **r** = (r_1, r_2,... r_T). Potom CVaR možno vypočítať ako (Sun, Aw, Li, Teo, & Sun, 2020), (Guo, Chan, Wong, & Zhu, 2019), (Pekár, 2015), (Yamai & Yoshiba, 2005) a (Pflug, 2000).

$$CVaR(\mathbf{r})_\alpha = VaR_\alpha + \frac{1}{\alpha T} \sum_{t=0}^{T} [r(t) - VaR_\alpha]^+ \tag{4}$$

Miera rizika DrawDown (DD) predstavuje označenie pre pokles hodnoty aktíva od dosiahnutého maxima po jeho aktuálnu hodnotu na konci sledovaného obdobia (Cheklov, Uryasev, & Zabarankin, 2003). Na základe hodnôt DrawDown možno stanoviť aj mieru rizika podmienený DrawDown (CDDaR) (Pekár, Brezina, & Brezina, 2018) (Goldberg & Mahmoud, 2017).

Mieru rizika DrawDown možno vypočítať ako

$$DD(\mathbf{P}) = \max\left\{\left(\max_{1 \le t \le T}\{P_t\} - P_T\right) / \max_{1 \le t \le T}\{P_t\}, 0\right\} \tag{5}$$

a na jej základe podmienený DrawDown $CDDaR(\mathbf{P})_\alpha$ na zvolenej úrovni spoľahlivosti α

$$CDDaR(\mathbf{P})_\alpha = DDaR_\alpha + \frac{1}{\alpha T} \sum_{t=1}^{T} [DD(t) - DDaR_\alpha]^+ \tag{6}$$

kde $DDaR_\alpha$ je prahová hodnota pre DD portfólio, pričom túto hodnotu môže prekročiť len αT pozorovaní. Ďalšie miery rizika sú uvedené napr. v (Pekár et al., 2018).

3. ANALÝZA VPLYVU KRÍZ SPÔSOBENÝCH COVID-19 A UKRAJINSKÝM KONFLIKTOM NA INVESTIČNÚ STRATÉGIU

V príspevku si autori stanovili cieľ analyzovať vplyv ochorenia Covid-19 a ukrajinského konfliktu – Obdobie 2 od 1.1.2020 do 23.2.2022 (Covid-19), Obdobie 3 od 24.2.2022 do 25.8.2022 (ukrajinský konflikt) v porovnaní s vývojom pred krízami – Obdobie 1 od 1.1.2018 do 31.12.2019. Pre uvedené obdobia boli k dispozícii historických cien (denné dáta) zvolených akcií obsiahnutých v akciovom indexe Dow Jones Industrial Average[1].

V tabuľke 1 sú uvedené vypočítané priemerné denné výnosy (Mean) akcií DJIA za Obdobie 1, za druhé obdobie Obdobie 2 a za tretie Obdobie 3.. Z tabuľky 1 je zrejmé, že v uvažovanom Období 3 dosahovali priemerné výnosy najnižšie hodnoty pre 17 aktív, v Období 2 pre 4 aktíva a v Období 1 pre 8 aktív. Naopak, najvyššie hodnoty dosahovali priemerné výnosy v Období 3 pre 9 aktív, v Období 2 pre 8 aktív a v Období 1 pre 13 aktív (MCD dosahuje maximálnu hodnotu v dvoch obdobiach). Najvyššiu hodnotu maximálneho výnosu spomedzi všetkých aktív vo všetkých troch obdobiach pritom reprezentuje hodnota 0,151% pre MRK. Vypočítané výnosy nadobúdajú všetky záporné hodnoty len pre MMM.

[1] https://us.spindices.com/indices/equity/dow-jones-industrial-average#overview

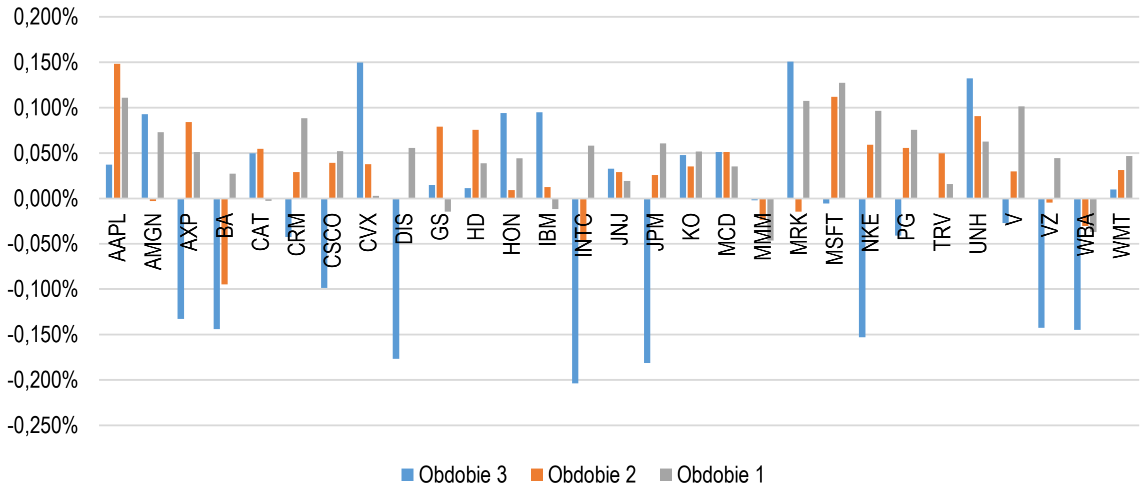
Tabuľka 1: Priemerný denný výnos akcií DJIA za obdobia 1, 2 a 3

	AAPL	AMGN	AXP	BA	CAT	CRM	CSCO	CVX	DIS	GS	HD	HON	IBM	INTC	JNJ
Obdobie 3	0.037%	0.093%	-0.133%	-0.144%	0.050%	-0.043%	-0.098%	0.150%	-0.177%	0.015%	0.011%	0.094%	0.095%	-0.204%	0.033%
Obdobie 2	0.148%	-0.003%	0.084%	-0.095%	0.055%	0.029%	0.039%	0.038%	0.000%	0.079%	0.076%	0.009%	0.013%	-0.047%	0.029%
Obdobie 1	0.111%	0.073%	0.051%	0.027%	-0.002%	0.088%	0.052%	0.003%	0.056%	-0.014%	0.039%	0.044%	-0.012%	0.058%	0.019%
Minimum	0.037%	-0.003%	-0.133%	-0.144%	-0.002%	-0.043%	-0.098%	0.003%	-0.177%	-0.014%	0.011%	0.009%	-0.012%	-0.204%	0.019%
Maximum	0.148%	0.093%	0.084%	0.027%	0.055%	0.088%	0.052%	0.150%	0.056%	0.079%	0.076%	0.094%	0.095%	0.058%	0.033%
	JPM	KO	MCD	MMM	MRK	MSFT	NKE	PG	TRV	UNH	V	VZ	WBA	WMT	
Obdobie 3	-0.181%	0.048%	0.051%	-0.002%	0.151%	-0.005%	-0.153%	-0.041%	0.000%	0.132%	-0.027%	-0.142%	-0.145%	0.010%	
Obdobie 2	0.026%	0.035%	0.051%	-0.024%	-0.015%	0.112%	0.059%	0.056%	0.050%	0.091%	0.030%	-0.005%	-0.030%	0.031%	
Obdobie 1	0.061%	0.052%	0.035%	-0.047%	0.108%	0.127%	0.097%	0.076%	0.016%	0.063%	0.101%	0.044%	-0.037%	0.047%	
Minimum	-0.181%	0.035%	0.035%	-0.047%	-0.015%	-0.005%	-0.153%	-0.041%	0.000%	0.063%	-0.027%	-0.142%	-0.145%	0.010%	
Maximum	0.061%	0.052%	0.051%	-0.002%	0.151%	0.127%	0.097%	0.076%	0.050%	0.132%	0.101%	0.044%	-0.030%	0.047%	

Zdroj: vlastné spracovanie

Uvedené skutočnosti dobre reprezentuje obrázok 1.

Obrázok 1: Priemerný denný výnos akcií DJIA za obdobia 1, 2 a 3



Zdroj: vlastné spracovanie

Kladné hodnoty v Období 3 nadobúda priemerné výnosy 14 aktív, v Období 2 to bolo 22 aktív a 24 aktív v Období 1. Z Tabuľky 1 a Obrázku 1 teda vyplýva, že na priemernom dennom výnose akcií DJIA za obdobie 1, obdobie 2 a obdobie 3 sa vplyv ukrajinského konfliktu prejavil na finančných trhoch, pretože priemerný výnos väčšiny vybraných akcií DJIA bol výrazne nižší ako v prvom a druhom období.

Hodnoty mier rizika CVaR a CDDaR sú uvedené v tabuľkách 2 a 3. V Tabuľke 2 sú všetky hodnoty miery rizika CVaR v Období 2 nižšie ako hodnoty v Období 1. Z porovnania hodnôt v Období 3 a v Období 1 vyplýva, že 26 akcií taktiež nadobúda nižšie hodnoty v Období 3 a len 3 akcie (AMGN, MMM a UNH) nadobúdajú nižšie hodnoty v Období 1. Z porovnania hodnôt CVaR v Období 3 a Období 2 je zrejmé, že len pre 5 akcií sú vypočítané hodnoty nižšie pre Obdobie 3.

Teda z uvedeného vyplýva, že na miere rizika CVaR sa v treťom sledovanom období (od 24.2.2022 do 25.8.2022) na finančných trhoch prejavil vplyv ukrajinského konfliktu menej ako vplyv nárastu ochorení na Covid-19 v druhom sledovanom období (od 1.1.2020 do 23.2.2022).

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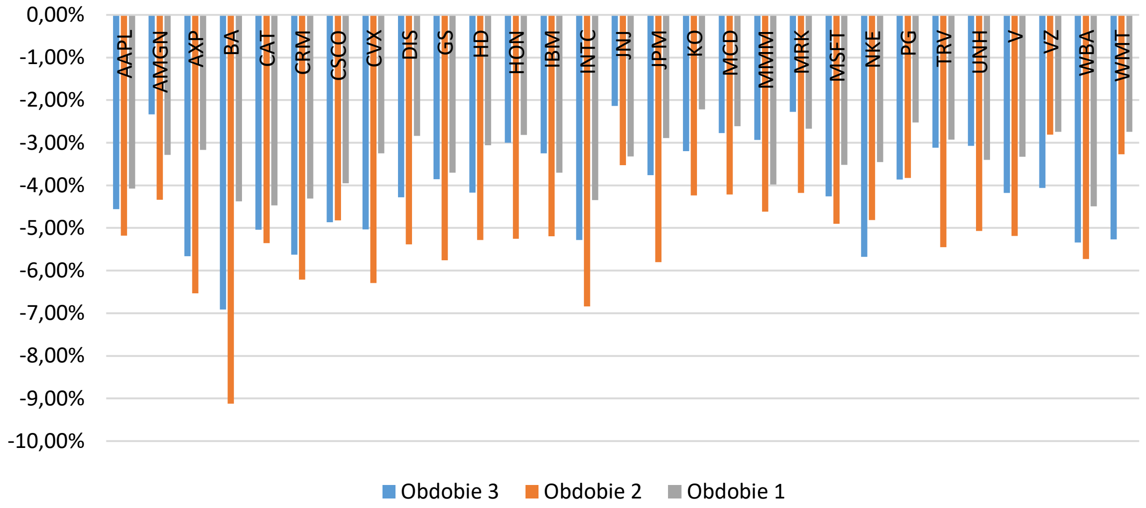
Tabuľka 2: Miera rizika CVaR

CVaR	AAPL	AMGN	AXP	BA	CAT	CRM	CSCO	CVX	DIS	GS	HD	HON	IBM	INTC	JNJ
Obdobie 3	-4,56%	-2,34%	-5,66%	-6,92%	-5,04%	-5,63%	-4,87%	-5,03%	-4,28%	-3,86%	-4,17%	-3,00%	-3,25%	-5,28%	-2,14%
Obdobie 2	-5,18%	-4,34%	-6,54%	-9,12%	-5,36%	-6,21%	-4,82%	-6,29%	-5,38%	-5,76%	-5,28%	-5,25%	-5,19%	-6,84%	-3,52%
Obdobie 1	-4,08%	-3,28%	-3,17%	-4,37%	-4,47%	-4,31%	-3,95%	-3,25%	-2,84%	-3,70%	-3,06%	-2,82%	-3,70%	-4,35%	-3,32%
	JPM	KO	MCD	MMM	MRK	MSFT	NKE	PG	TRV	UNH	V	VZ	WBA	WMT	
Obdobie 3	-3,76%	-3,20%	-2,77%	-2,94%	-2,28%	-4,26%	-5,68%	-3,86%	-3,11%	-3,07%	-4,18%	-4,06%	-5,34%	-5,26%	
Obdobie 2	-5,80%	-4,23%	-4,22%	-4,61%	-4,18%	-4,91%	-4,82%	-3,82%	-5,45%	-5,07%	-5,19%	-2,81%	-5,73%	-3,27%	
Obdobie 1	-2,89%	-2,21%	-2,61%	-3,98%	-2,67%	-3,52%	-3,45%	-2,53%	-2,92%	-3,40%	-3,33%	-2,74%	-4,49%	-2,75%	

Zdroj: vlastné spracovanie

Obrázok 2: Hodnoty rizika CVaR akcií DJIA za obdobia 1, 2 a 3



Zdroj: vlastné spracovanie

Tabuľka 3: Miera rizika CDDaR

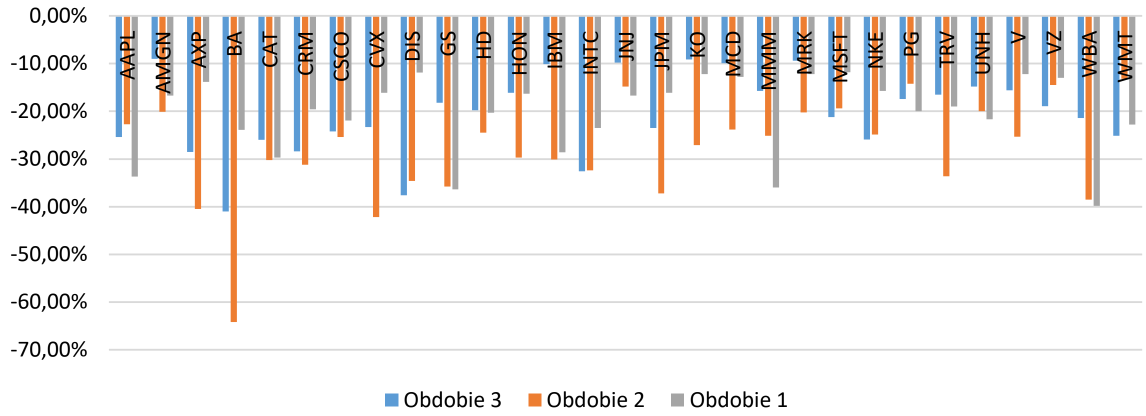
CDDaR	AAPL	AMGN	AXP	BA	CAT	CRM	CSCO	CVX	DIS	GS	HD	HON	IBM	INTC	JNJ
Obdobie 3	-25,40%	-9,00%	-28,50%	-41,00%	-26,00%	-28,40%	-24,20%	-23,30%	-37,60%	-18,20%	-19,80%	-16,10%	-10,10%	-32,60%	-9,80%
Obdobie 2	-22,70%	-20,10%	-40,50%	-64,20%	-30,20%	-31,20%	-25,40%	-42,20%	-34,60%	-35,80%	-24,50%	-29,70%	-30,10%	-32,40%	-14,80%
Obdobie 1	-33,70%	-16,70%	-13,80%	-23,90%	-29,70%	-19,60%	-21,90%	-16,10%	-11,90%	-36,40%	-20,30%	-16,30%	-28,60%	-23,50%	-16,70%
Minimum	-33,70%	-20,10%	-40,50%	-64,20%	-30,20%	-31,20%	-25,40%	-42,20%	-37,60%	-36,40%	-24,50%	-29,70%	-30,10%	-32,60%	-16,70%
	JPM	KO	MCD	MMM	MRK	MSFT	NKE	PG	TRV	UNH	V	VZ	WBA	WMT	
Obdobie 3	-23,50%	-9,10%	-9,90%	-15,70%	-9,40%	-21,20%	-25,90%	-17,40%	-16,50%	-14,80%	-15,60%	-18,90%	-21,40%	-25,10%	
Obdobie 2	-37,20%	-27,10%	-23,80%	-25,10%	-20,20%	-19,40%	-24,90%	-14,20%	-33,60%	-20,00%	-25,30%	-14,50%	-38,50%	-13,20%	
Obdobie 1	-16,10%	-12,20%	-12,80%	-36,00%	-12,20%	-11,80%	-15,70%	-20,00%	-19,00%	-21,70%	-12,20%	-13,00%	-39,80%	-22,80%	
Minimum	-37,20%	-27,10%	-23,80%	-36,00%	-20,20%	-21,20%	-25,90%	-20,00%	-33,60%	-21,70%	-25,30%	-18,90%	-39,80%	-25,10%	

Zdroj: vlastné spracovanie

Z Tabuľky 3 a aj z obrázku 3 je zrejmé, že najnižšiu hodnotu miery rizika CDDaR počas Covid-19 (Obdobie 2) bola vypočítaná pre spoločnosť Boening (BA), čo zodpovedá hodnote -64,20% v Tabuľke 3 a táto hodnota predstavuje aj minimálnu hodnotu CDDaR vo všetkých sledovaných obdobiach. V období ukrajinského konfliktu nadobúda miera rizika CDDaR najnižšiu hodnotu taktiež pre spoločnosť BA (-41,00%).

Najnižšie hodnoty vypočítaných mier rizika CDDaR boli pritom vypočítané pre Obdobie 2 (Covid-19) pre 16 akcií, pre Obdobie 3 (ukrajinský konflikt) pre 5 akcií a pre Obdobie 1 (predkovidové obdobie) pre 8 akcií.

Obrázok 3: Hodnoty rizika CDDaR akcií DJIA za obdobia 1, 2 a 3



Zdroj: vlastné spracovanie

ZÁVER

Akákoľvek kríza môže vzniknúť v určitom časovom horizonte z akéhokoľvek dôvodu, preto by mali mať investori k dispozícii dostatok informácií, analýz a nástroje na rozhodnutie, do akých aktív bude při uvažovaných scenároch možné a potrebné investovať disponibilné finančné prostriedky pri maximalizácii zisku a minimalizácii rizika.

Autori sa pokúsili na akciovom indexe DJIA porovnať vplyv krízy Covid-19 a krízy spôsobenej ukrajinským konfliktom na ukazovatele výnos a riziko, ktoré sú základnými ukazovateľmi investovania pomocou vybraných spôsobov výpočtu výnosov a rizika. Pre porovnanie vplyvu ochorenia Covid-19 a ukrajinského konfliktu na vybraný akciový index DJIA boli na základe historických cien akcií v ňom obsiahnutých realizované analýzy vplyvu pandémie Covid-19 na investičnú stratégiu pred výskytom Covid-19 (Obdobie 1) počas výskytu Covid-19 (Obdobie 2) a počas ukrajinského konfliktu (Obdobie 3). Boli vypočítané priemerné denné výnosy vybraných akcií DJIA a riziko investovania bolo vypočítané pomocou miery rizika CVaR a miery rizika CDDaR. Najnižšia hodnota pritom predstavuje najvyššie zvýšenie rizika a najvyššia kladná hodnota najväčšie zníženie rizika investovania najviac zo všetkých uvažovaných spoločností.

V príspevku je prezentovaná analýza vplyvu krízy Covid-19 a krízy vyplývajúcej z ukrajinského konfliktu na akciový trh, pričom hlavným cieľom je analýza vplyvu kríz na zmenu trhu, ktorá sa odzrkadlila v dopyte po jednotlivých akciách v rôznych priemyselných segmentoch. Na základe získaných riešení možno konštatovať predovšetkým výrazný vplyv krízy Covid-19.

Uvedený postup analýzy nemusí byť realizovaný na vybranom akciovom indexe (okrem uvedených napr. Wishire, Russell 2000, Nasdaq Composite, FT-SE 100, Morgan Stanley Capital International World, Dow Jones Eurostoxx, RTSI, DAX, ATX, CAC 40, Hang Seng, Nikkei Stock Average, PX 50, SAX atď.), ale aj na akejkoľvek vlastnej množine vybraných akcií.

Poděkování

Príspevok vznikol s podporou projektu VEGA 1/0339/20 „Využitie skrytého Markovovho modelu vo finančnom modelovaní".

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BIOGAS STATIONS IN THE CZECH REPUBLIC – SUBSIDIES, COSTS, AND REVENUES

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Abstract: The current energy crisis forces us to look for new energy sources in addition to savings. Undoubtedly, their purpose is environmental friendliness and the much-discussed question of independence from other countries. One of the ways is the use of biomass for the construction of biogas stations. The paper deals with this issue in the agricultural sector in the Czech Republic. However, the construction of these stations is relatively demanding in terms of investment, which is why specific subsidy programs have been prepared for their development. However, the operation itself entails further costs but also revenues. At the same time, the article tries to demonstrate this issue in a case study of a selected agricultural enterprise.

Keywords: Biogas stations, subsidies, costs, revenues, agriculture.

JEL Classification: M41, Q14, Q4

INTRODUCTION

Biogas stations (BS) are technical devices designed to transform agricultural substrates, biodegradable waste, and sewage sludge into biogas that can be used energetically (Münster & Meibom, 2011; Dach et al., 2014). Biogas is generally a gaseous mixture created by the activity of microorganisms. This means that all types of biogas of anaerobic origin are produced in the same way in principle, whether the methanogenic process takes place below the surface of the earth, in the digestive tract of animals, in municipal waste dumps, in lagoons, or controlled anaerobic reactors. Biogas generation is the final stage of the biochemical conversion of organic matter under anaerobic conditions to biogas and residual fermented material (Michal, 2005; Rasi et al., 2007). In technical practice, the use of the name biogas for the gaseous mixture created by the anaerobic fermentation of wet organic substances in artificial technological devices, e.g., reactors, digesters, lagoons with biogas collection equipment, etc., has become established.

There are three main reasons for the utilization of anaerobic fermentation of organic materials that come from agriculture, forestry, the municipal economy and the rural landscape. These are the production of quality organic fertilizers, the acquisition of an additional energy source and the improvement of the work and environment.

Environmental improvements will have an increasing incentive role in the decision to build biogas stations, as the energy use of biomass has a positive effect on limiting the concentration of carbon dioxide in the atmosphere compared to fossil fuels. During biomass production, carbon dioxide is consumed during photosynthesis and released back into the atmosphere when the biomass is used for energy. This closes the short-term CO_2 cycle (VÚZT 2007). The Czech Biogas Association (CBA) divides BS into municipal, industrial, agricultural, landfill biogas, and wastewater treatment plants.

In the Czech Republic, biogas production has developed mainly for the degassing of municipal waste landfills and stabilizing sewage sludge in wastewater treatment plants. 80% of this potential is used (Váňa, 2010). The highest potential is in processing agricultural renewable raw materials, i.e., animal droppings and plant biomass. There are currently 574 biogas stations in operation in the Czech Republic, with biogas accounting for 22.9% of energy production from renewable sources (CBA, 2019).

In large-scale farms without ties to the land, animal feces, litter residues, and other organic material are often considered waste. But it can be used for the production of organic fertilizers or organically processed by anaerobic methanogenic fermentation for the production of biogas (Váňa, 2002). In the context of the circular economy, biogas production is seen as a versatile renewable energy source that will help reduce greenhouse gas emissions (Potting et al., 2016). Large-scale biogas production is an established technology with high potential in developed countries. For example, a study by Soares et al. (2020) shows a high potential for biogas production using co-digestion of pig manure and placenta or pig waste with an automatic mixing system. Maroušek & Gavurová (2022) indicate the possibility of using biogas fermentation residues as a well-usable source of phosphorus for plant nutrition.

However, considerable support for agricultural biogas plants has also drawn criticism (Vochozka et al., 2018). High construction and operating costs, the need for large storage areas for raw materials, the significant load on roads and vehicles during the collection of raw materials, the noise of machinery, and the increased risk of soil erosion can be perceived as unfavorable. Quality organic fertilizers, the basis of the sorption complex, do not get into the soil, which can negatively affect soil fertility. The ability of digestate to replace manure is debatable. Opponents of biogas facilities also argue that using crops for purposes other than food is an ethical issue (e.g., Balussou et al., 2018; Barros et al., 2020). On the one hand, the pressure to use renewable energy sources is increasing, on the other hand, the rapidly growing population of the planet will necessarily need food, and the area of agricultural land and its fertility is decreasing. However, Vochozka et al. (2018) report that reducing the input of purpose-grown phytomass will reduce pressure on food prices and improve environmental acceptability.

The economic efficiency of biogas plants is influenced not only by investment parameters, especially investment costs, capital costs, and the amount of non-refundable subsidies, but also by operational indicators, especially revenues from waste management, electricity sales, heat, and digestate. The introduction of biogas and electricity production through a biogas plant is financially demanding and requires investment in many production components. In practice, biogas is most often used as fuel for a BPS combustion engine, where it is converted into electrical energy and heat by cogeneration. Heat production is seasonal mainly due to its application; year-round use assumes the creation of additional financially demanding investments (Poláčková, 2013). National policies set bioenergy prices, and although feed-in prices in Europe are generally still high, their operating time is limited, and they are gradually decreasing. The economic viability of this type of initiative is thus significantly influenced by external political, legal, and market factors (Donner et al., 2020).

1. RESEARCH METHODOLOGY

The goal of the contribution is the evaluation of biogas plants from the point of view of the Czech Republic and is structured in two parts. The first part is focused on the situation in terms of station support. The data source was, on the one hand, legal legislation regulating possible support. Then there are the reports of the authorities that dealt with the payment of subsidies. All sources are then listed at the end of the post. The next part of the contribution is a case study with internal data of a selected agricultural enterprise, which decided on the construction of this station and eventually implemented it. The total investment expenditure is first presented on the data (5-year period). The data at the beginning of the analytical part contain the distribution of operating costs depending on the form of financing – i.e., without subsidy or with subsidy. This is followed by an evaluation of the detailed structure of these costs and revenues using the comparison method. The resulting values of the planned economic result were compared with its actual amount and supplemented with a cash flow indicator (adjustment using the indirect method through depreciation). The accounting data was therefore evaluated from an ex-ante and ex-post point of view.

2. RESULTS

2.1 Support for agricultural biogas stations

Investment subsidies for the construction, modernization, or reconstruction of agricultural BS (biogas station) were provided mainly through the Rural Development program (RDP) 2007–2013 as part of measures III.1 - Measures to diversify the rural economy III.1.1 Diversification of activities of a non-agricultural nature. The support is aimed at diversifying the activities of agricultural entities towards non-agricultural activities, especially in the field of construction of decentralized facilities for the processing and use of renewable energy sources with the aim of energy self-sufficiency in the countryside and fulfilling the obligations of the Czech Republic to achieve 8% of energy from renewable sources.
As part of the Rural Development Program, 143 projects with a subsidy of 2.64 billion crowns were approved as of 8/31/2014. 138 projects for 2.54 billion crowns have already been implemented and reimbursed (Anděrová, 2014). Table 1 shows approved applications by individual calls within the 2007–2013 PRV, including allocated subsidy funds.

Tab. 1 Approved applications under the RDP 2007-2013

Call	**Number of approved applications**	**Requested subsidy in CZK**
1st round 2007	21	493 895 826
3rd round 2008	18	463 666 286
6th round 2009	28	455 920 895
9th round 2010	61	981 012 993
13th round 2012	26	447 612 727
TOTAL	154	2 842 108 727

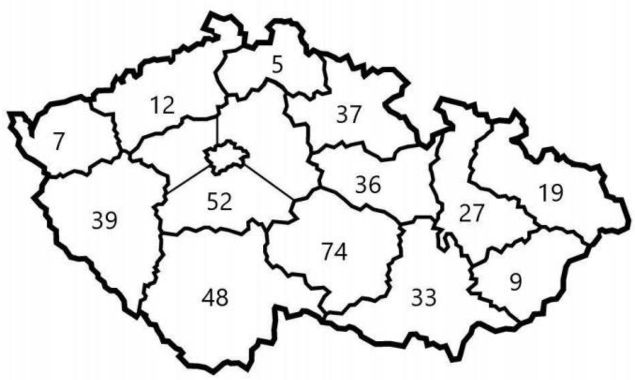
Source: Own processing from MZe

The new strategy, whose aim was to limit the purposefully grown biomass with negative impacts on the environment, especially soil and water, was to give preference to those projects that will integrate BS into a technological unit with other (production or other) activities. In this area, the sector of pig breeding and the use of manure appeared to be particularly promising (MZe, 2012). Within the PRV 2014–2020, operation 6.4.3 Investments to support energy from renewable sources, investments aimed at diversifying the activities of agricultural entities into non-agricultural activities leading to income diversification (the project must not serve only to cover the energy needs of the applicant) and the use of by-products are supported, and raw materials for the biological economy, especially in the field of construction of facilities for the processing and use of renewable energy sources (investment in facilities for the production of shaped biofuels and biogas stations). Supported BS has a maximum installed power of 500 kW. Consumables, general costs according to Article 45 NK (EU) No. 1305/2013, and other expenses that are not directly related to the implementation of the project are not supported. Based on the analysis carried out to determine the profitability of the BS, in the case of the construction of the BS, following the Commission Delegated Regulation (EU) No 807/2014, Article 13 e), is set the annual energy value of the targeted biomass (cereals and other crops with a high starch, sugar or oil used for the production of bio-energy) from the total annual energy of the bulk material was established at a maximum of 20 %.The call was only announced in the 4th round in 2017; due to the change in strategy, there was no interest in this support. Considering the conditions of the call and the overall legislative framework of support, a minimum absorption capacity was found for operation 6.4.3 plan b) Construction of new biogas stations. The evaluator suggested changing the call's conditions (capacity and composition of input raw materials), and possibly reallocating funds. The main reasons for the low interest in investing in biogas stations were probably the new pricing policy and the obligation to use pig slurry in a certain percentage of raw materials. For this reason, it was proposed to redistribute the remaining amount of the operation between 6.1.1 Starting the activity of young farmers (MZe, 2017).

Above all, in the production of biogas, there should be a replacement of agricultural biomass grown in a targeted manner with waste biomass and biodegradable waste. This will not only bring about the use of the biodegradable component of municipal waste, which is currently deposited in landfills in the form of mixed waste but will also eliminate the negative impacts of targeted biomass cultivation on agricultural land, water, and other environmental components (MZe, 2020).

According to data from the Czech Biogas Association, there are 398 agricultural biogas stations in operation in the Czech Republic. The spatial distribution by region shows chart 1.

Fig. 1 Agricultural biogas stations by region



Source: Czech Biogas Association (CBA)

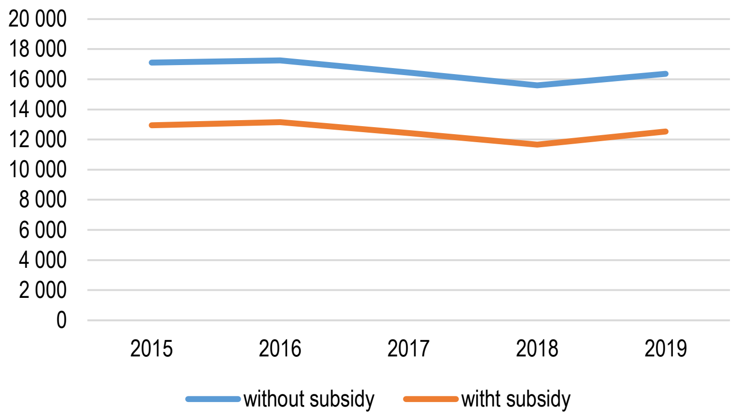
2.2 Construction of a biogas station – case study

The investor is a private company engaged in agriculture since 1993. Regarding the legal form of business, it is a limited liability company. The company currently employs an average of around 50 employees. It manages approximately 1,500 ha of agricultural land, on which it mainly produces wheat, rapeseed, and maize for silage. The company focuses on cattle breeding with milk production in animal production. Business in agriculture, like any other, is motivated by profit and maximizing the company's market value. The investor aims to produce crops in demand in the market and can be sold at a profitable price. The project for the construction of a biogas station was developed with the aim of efficient and ecological use of organic residues from animal and plant production, as well as for energy savings through the use of renewable resources.

According to the project developed by the designer, implementing the BS assumes investments in the construction and purchase of a fermenter, mixers, gas storage, cogeneration unit, machine room, deferment, and digestate storage tank. The estimated lifespan of individual BPS components is 10-20 years. Biogas production per year is estimated at 2,000,000 m^3. Biogas will further be used for producing electricity and heat by combustion in a piston engine. The presented type of cogeneration has the highest efficiency. The proposed cogeneration unit has an electrical output of max 600 kW. The electrical energy will then be sold; the heat will be used only for needs of the enterprise (heating a nearby building, drying primary agricultural products, and in the future, it is intended to heat the stables). There are no potential customers (other companies, households) in the vicinity of BPS, and conducting heat over longer distances is financially very demanding. The primary input raw materials (maize silage and beef slurry) will be consumed from their own sources. The placement of corn silage is designed to eliminate the cost of transporting the raw material to the fermenter. The biogas station will be located exclusively on its land.

The capital expenditure was determined based on the budget prepared by the designer of CZK 73,222,104. Since the implementation was planned within one year, the capital expenditure is not discounted. The company had two options of financial resources to choose from, without subsidy and with subsidy. The considered support is intended as part of the subsidy for projects of the Rural Development Program of the Czech Republic for 2014–2020, operation 6.4.3. The investment to support energy from renewable sources could amount to 40% (i.e., CZK 29,288,842). In the case of financing without a subsidy, the company could use external funding from a bank at an interest rate of 3.98%. These two financing options, therefore, had an impact on **the cost forecast** - see chart 2.

Fig. 2 Costs forecast (in thousands of CZK)



Source: Internal data of the enterprise, own processing.

The average amount of total annual costs in the period under review in the case of non-use of subsidy financing was estimated at CZK 16.5 million, and in the case of subsidy utilization, it was CZK 4 million lower. A more detailed view of the cost structure is shown in Table 2. It is evident that the highest share of costs is made up of depreciation, which is also reflected in the total cost value. The acceptance of an investment grant has an accounting impact on the amount of the asset's entry price. This subsidy reduces the purchase price and therefore the depreciation is lower (from 32% to 25%). Straight-line depreciation is used for the analysis. A biogas station consists of many components and, when included in the property, is divided into 4 groups according to their useful life. The following two highest cost items are naturally formed in Input raw materials (1) - corn hay, manure, cereals (16-21%), and similarly maintenance and repair costs (5). Again, the interest value, which reaches about 15%, is linked to the financing method in the case of using loans.

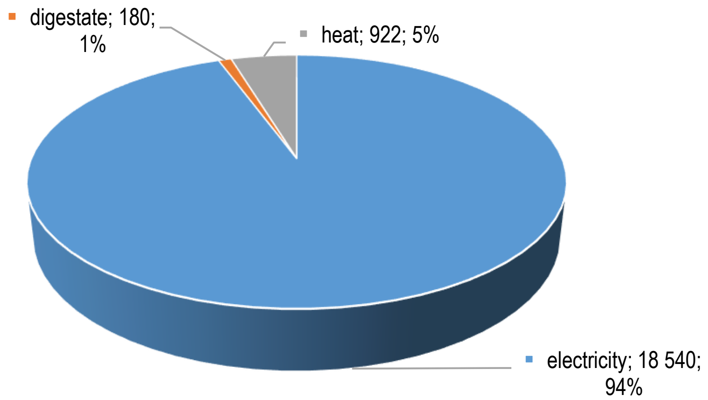
Tab. 2 Cost structure (in %)

Nr.	Cost structure	without subsidy	with subsidy
1	Input raw materials	16,03%	21,16%
2	Power consumption	1,41%	1,86%
3	Water consumption	0,28%	0,37%
4	Fuel consumption	0,52%	0,69%
5	Maintenance and repair costs	17,06%	22,51%
6	Investment insurance	1,38%	1,81%
7	Labor costs	2,06%	2,72%
8	Other operating expenses	14,06%	18,57%
9	Loan interest	14,82%	4,66%
10	Depreciation	32,38%	25,65%

Source: Internal data of the enterprise, own processing.

In terms of **revenues**, sales are planned at the following levels: sales of electricity, heat, and digestate. At the time of the study, the realization price of electricity was from the current price decision of the Energy Regulatory Office (ERO), which establishes support for the production of electricity from renewable energy sources, the combined production of electricity and heat, and secondary energy sources. A fixed purchase price rate will be used to calculate the returns. The price of one kilowatt hour (kWh) is set by ERO at 4.12 CZK. The estimated output is 375,000kWh/month. Digestate is an organic fertilizer created by anaerobic fermentation during biogas production, rapidly releasing nitrogen. His estimate was set at CZK 15,000/month. The secondary product of the anaerobic process is heat, which was calculated at 6,148.8 GJ/year at a heated price of CZK 150/GJ. Only heat for which further use is expected is determined. Unused heat will be wasted in an emergency cooler. The structure of the resulting revenues is shown in chart 3, from which the highest revenues (approx. 94%) will be realized through the sale of electricity.

Fig. 3 Revenues forecast (in thousands CZK; %)



Source: internal data of the enterprise, own processing.

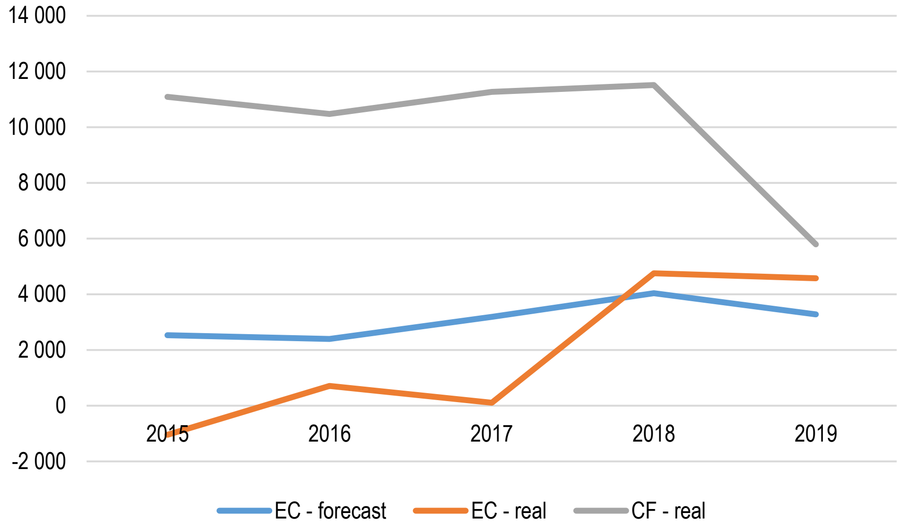
What was the **real development of costs and revenues** that could be worked out after 5 years. Regarding the implementation of the construction of the biogas station, a study was prepared to evaluate the effectiveness of the investment. Both variants (with and without subsidy) were considered as effective and feasible for the company. The variant with the investment subsidy showed better results, but in the end, the variant without using the support was implemented. This situation occurred due to internal company matters. Real revenues from the biogas station average 18,800 thousand CZK. This amount is influenced by three aspects, namely fault-free operation (the station is capable of operating 24 hours, 7 days a week), the quality of input raw materials (the station processes materials of a plant nature and farm fertilizers, or bedding) and the way electricity is sold. The company is protected by tangible property insurance against the risk of operational failure but is not insured against loss of income due to equipment failure. The quality of the input raw materials depends on the climatic conditions. There was a change in the area of electricity sales in 2018. Until this time, the realization price of energy was based on the recent decision of the Energy Regulatory Office, which establishes support for production from renewable energy sources, the combined production of electricity and heat and secondary energy sources, when the purchase price per kilowatt hour was fixed at CZK 4.12. In 2018, the company switched to electricity sales through a combination of electricity sales + the so-called green bonus (Štěrbová, 2021).

The green bonus regime assumes that the producer will find a consumer (trader) for the electricity he produces and will contractually resolve the issue of deviations with a third party. The delivered electricity is then sold at a market price reflecting the quality of the electricity (supply diagram, controllability, reliability, etc.). The green bonus then represents a surcharge to the market price. It is determined as the difference between the minimum price calculated for the amount of the discount (WACCOZE) and the estimated market price for the given type of renewable energy sources. Green bonuses are paid to manufacturers through OTE, a.s. However, this way of selling electricity already carries a market risk since the purchase prices set by traders depend on the price on the stock exchange. The company has no protection against this risk. Year-to-year fluctuations in electricity revenues are mainly caused by equipment failures, whether it is a failure of a motor, agitator, or another component or equipment downtime due to planned repairs. During the observed period, returns oscillate around the average value, and fluctuations are negligible. Their prediction was therefore determined by a very high-quality estimate with a deviation of up to 5%.

However, the situation is somewhat different when comparing planned and real costs. On average, they reached approx. 500,000 CZK annual increase over plan (in the total value over the monitored 5-year period, an increase of approx. CZK 2.5 million). Their development was very variable. In the first three years, the reality exceeded the plan by approx. 10%, but in the last two years, the situation reversed, and the actual costs were lower in 2019 by approx. 20%. The explanation will give us an insight into their closer structure. Both in the calculation and the real development, the highest depreciations were with an average share of approx. 40%. However, their absolute value dropped significantly in 2019 by up to 60%, apparently due to a change in the depreciation policy. According to the plan, consumption of raw materials (average 17%) and operating overhead (18%) had other significant shares. Furthermore, maintenance and repair costs (average 12%) were also predicted very correctly, which had an upward trend, which is understandable given the wear and tear of the equipment. The total impact on the economic result and cash flow in the distribution of plans and reality is shown in chart 4.

https://doi.org/10.24132/jbt.2022.12.2.51_60

Fig. 4 Economic result forecast, real and cash flow real (in thousands of CZK)



Source: Internal data of the enterprise, own processing.

Although the plan was more optimistic and calculated a profit of approximately CZK 15.5 million in the first five years, the actual development of the economic result can also be described as satisfactory. Apart from the first year, a profit with a growing tendency was realized in excluding 2017, partly 2019, and its total value reached over 9 million CZK. The situation is even better from the view of cash flow, which hovers around CZK 10 million. This is a more meaningful indicator for the company, as it shows how much cash the investment generated, and for the monitored period, it was a positive value of approx. 50 million CZK. However, it is necessary to point out here that the initial investment expenditure and the sources of its financing must also be taken into account during further evaluation (see above).

CONCLUSION

Since 2007, approx. 2.5 billion CZK has been allocated to support biogas stations. Unfortunately, with the change in strategy and conditions since 2014, there has been no interest in these supports. So here you can see the precise impact of essentially political decisions, which, over time, are not entirely correct. As many studies have shown (e.g., Chen et al., 2017; Winquist et al., 2021), currently, the urgency to use renewable energy sources is growing due to climate change and increasing dependence on fossil fuels, more recently because of rising energy prices. The role of biogas is much broader than just providing renewable energy, but it also benefits from reducing emissions from agriculture and closing the loop in a circular economy. However, biogas's future depends mainly on political decisions; above all, a stable and predictable energy policy is needed (Winquist et al., 2021; Trypolska et al., 2021).
Based on the case study, it was proven that the construction of this station is a direct benefit for the investor (in the given example, the investment cost was approximately 73 million CZK and generated a cash flow of roughly 50 million CZK over the observed 5-year period). Of course, the high-quality processing of the feasibility study is the basis for the investor's decision to accept the investment, which was the case in our case. The investor's final decision to finance without a subsidy contributed to the higher investment cost, but it was still financially beneficial. Another aspect in this context in connection with the current energy crisis is the possibility of own electricity generation and thus less dependence on external sources.

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CUSTOMER TYPOLOGY ON THE TRAVEL MARKET

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Abstract: The aim of this article is to create a customer typology on the travel market in the Czech Republic according to what way of travelling abroad consumers prefer. Quantitative research was used for conducting primary data, which were obtained through an online questionnaire survey in February 2022. The researched population consisted of residents of the Czech Republic, who are over 15 years old and travel abroad on holiday at least once a year (before Covid-19 pandemics). A total of 579 respondents completed the survey, from which 399 respondents travel abroad on holiday, remaining 180 interviewed people were excluded from the research as they do not travel abroad. All data were analysed using IBM SPSS Statistics program. Respondents expressed their agreement with a total of 14 statements depending on if they prefer individual or organised way of travelling abroad on holiday. Based on how they evaluated these statements they were divided into several segments, according to their common characteristics, using factor and cluster analysis. Four segments were defined for individual travel market: "Trendy travellers", „Adventurers", „Easy-going travellers" and „Open-minded travellers" and also four segments for the organised travel market: "Influenceable travellers", „Indifferent travellers", „Conservative travellers" and „Loyal travellers".

Keywords: Travel market, Segmentation, Cluster analysis, Marketing research, Questionnaire survey

JEL Classification: C38, C83, M31

INTRODUCTION

Tourism forecasts are now highly uncertain. The COVID-19 pandemic has significantly impacted the global tourism industry, with the number of foreign travellers dropping by 900 million (72 percent) from January to October 2020 and the industry reverting to pre-pandemic levels (Wang & Thiep, 2022). The COVID-19 pandemic also has shown a significant influence on the entire world and people's lifestyle. Numerous publications on the impact of the disease on individuals' mobility behaviour reveal that the willingness to travel and the usage of mass transit have remarkably declined (Beck & Henser, 2020, Zhang & Fricker, 2021, Luan et al. 2021).

Travel market has significantly evolved and changed. It can be stated that it is a diverse market and not all consumers behave the same way. The aim of this article is to create a customer typology on the travel market in the Czech Republic according to what way of travelling abroad customers prefer.

1. THEORETICAL BACKGROUND

Tourism and Travel Market

Tourism is crucial for humanity and a very important part in many people's lives. With its help consumers can satisfy wide range of their needs, such as need for relax, discovering new places, cultures and spending time with family. Travelling can have a positive effect on mental and moral values of individuals. In some countries tourism is closely linked with a significant part of the national economy, forms a notable part of GDP, employment and household expenditures. For the development of tourism, three factors are essential: safety in selected country, sufficient amount of customer's free time and reasonably large disposable incomes (Indrová et al, 2011). Travelling is defined as an activity of people who are temporarily staying in places outside their normal environment. There are several purposes of travelling, it can be purpose of spending a free time or holiday, business travel, occasion to see family members or many others (Jakubíková, 2012).
Travel market can be divided to two branches, that is individual travel market and organized travel market. Customers who prefer individual way of travelling search the travel offers and services themselves. They arrange transport, book accommodation, and plan all the activities in the selected destination, all by themselves. Nowadays there are many options where individuals can easily search and book all different types of accommodations in destinations across the whole word. There are also wide range of travel companies who offer flight tickets, bus tickets or can rent tourist a car. The second way of travelling is organized travelling. In this case customers are using services of travel agencies. The most widespread travel agency service is a tour package, which is a combination of transportation, accommodation, meals and entertainment services that are sold to the customer at a single price. In this case, the customer does not have to deal with anything else, the travel agency will take care of all the details (Jakubíková, 2012).

1.2 Market segmentation

Not all consumers have the same attitudes, characteristics, requirements, and ways to satisfy their needs. Therefore, companies need to find out how market segments differ from each other with respect to their products and brands or respond differently to elements of marketing communication. Subsequently, they must decide which segments to focus their efforts on (Pelsmacker, 2018). Market segmentation, deciding on target groups or segments to focus on, are important components of strategic marketing planning and the basic building blocks of a communication strategy. Understanding the purchase motivators and the behaviour of a target group is an essential element of successful marketing. Ideally, marketing segmentation should lead to the creation of internally homogeneous groups, in which should members of one segment respond equally to marketing stimuli, thus differ from members of other segments (Solomon et al, 2016).
As mentioned, the aim of segmentation is to define several market segments that significantly differ from each other. However, it is necessary to determine appropriate segmentation criteria first (Cahill, 2006). In this article, consumer attitudes in the travel market are analysed. Segmentation criteria are in this case based on attitudes and consumer behaviour in general. These criteria are called behavioural. As Kotler and Armstrong (2018) state, using behavioural criteria, consumers are divided into segments based on their knowledge, attitudes, degree of loyalty, frequency of use or reaction to the product. Many marketers believe that behavioural segmentation is the best starting point when building new segments.
After defining appropriate segmentation criteria, various analytical techniques, such as cluster analysis, conjoint analysis, multidimensional scaling, and automatic interaction detection, are used to subsequently identify consumer segments based on these criteria (Cahill, 2006).

1.3 Traveller typology

Although many studies on tourism treat the tourist as a homogenous type, some analysts have recognized that an understanding of the touristic experience requires constructing typologies (Wickens, 2002). Cohen (1972) was one of the first sociologists to propose a typology to conceptually clarify the term "tourist". His four-fold typology—the drifter, the explorer, the individual mass, and the organized mass—is based on the degree of institutionalization of the tourist. Cohen later established a typology based on what causes people to travel by identifying five main tourist types: recreational, diversionary, experiential, experimental and existential tourists (Shah et al., 2022). While in the 1970s and 1980s typologies concerned tourism and tourists generally, more interest since emerged in segmenting forms of niche and special interest tourism (Shah at al., 2022). However, Joseph et al. (2022) is sceptical of such tourist typologies for not taking seriously "the comparison of clusters on the basis of external variables such as demographic or tripographic".

1.4 Research Goal and Questions

The goal of the research is to segment customers on the individual and organized travel market in the Czech Republic. Based on the research goal and literature overview of traveller typology a total of five research questions have been created. These questions are listed below:

- *How consumer segments on individual and organized travel market differ from each other?*
- *What is the difference between the attitudes of consumers who prefer individual way of travelling abroad and consumers who prefer organized way of travelling?*
- *What are the consumer's main reasons for choosing the way of travelling abroad?*
- *What effect has consumers' age on the preferred way of travelling abroad?*
- *What effect has consumers' net monthly income on the preferred way of travelling abroad?*

2. METHODOLOGY AND DATA

For the elaboration of the analysis in this article, primary data were used. Quantitative research was used for conducting primary data, which were obtained through an online questionnaire survey, more precisely using CAWI method (Computer Assisted Web Interviewing). This method was chosen to secure a larger sample of respondents resulting in better explanatory power of the obtained information. A questionnaire consisting of 8 questions was created for the purpose of online interviewing. To create the questionnaire the ABC method was applied, this abbreviation is derived from the English words: awareness, behaviour and characteristics. The first group consists of questions that verify respondent's awareness of the researched problem, in the second group of questions respondents' attitudes to the researched topic are detected. The last group of questions then serves to identify respondents themselves (Malhotra, 2010).
The research population consisted of residents of the Czech Republic, who are over 15 years old and travel abroad on holiday at least once a year (before Covid-19 pandemics). These customers are suitable potential respondents whose consumer behaviour will be a subject of this research as they have personal experience with travelling on holiday to foreign countries and are in the age when they can make their own money and spend them on holiday. The sample was determined based on a quasi-representative quota sampling technique according to the age structure of population (aged 15+) in the Czech Republic.
Period of data collection was from 1. 2. 2022 to 15. 2. 2022, they were collected using the Google Forms website. After the survey phase the data was downloaded from Google Forms and further modified in Microsoft Excel program. Total of 180 respondents did not meet the requirements of the population base and were excluded from the research as they do not travel abroad on holiday. Remaining 399 questionnaires advanced to the stage of processing, coding and subsequent analysis. After completing all modifications in Excel, the final data matrix was transferred to the statistical program IBM SPSS Statistics (version 26), where the analysis took place. To evaluate the obtained data, the classification of the first and second degree was used. In addition, factor and cluster analysis were applied to perform the segmentation and to create customer typology on the travel market.
The structure of the sample was defined according to the gender, age, net monthly income, and highest achieved education. A total of 53 % of women and 47 % of men participated in the research. According to age, the largest group of respondents was in the age category from 15 to 26 (34 %), second most numerous group were people in the age from 26 to 35 (33 %), followed by consumers from 36 to 45 years old (16 %). In terms

of net monthly income, the group of respondents with an income between 20 001 and 30 000 CZK prevails. This group occupies 28 % of the sample. The next three income categories have the same distribution in the sample, 19 % of respondents have income less than 10 000 CZK, next 19 % have income between 30 001 and 40 000 CZK and last 19 % have more than 40 000 CZK.

Last characteristics of respondents was the highest education level, most participants in the research have high school diploma (47 %) or college degree (45 %), only 8 % of them has compulsory education. The structure of the sample is visible in the Table 1.)

Tab. 1: Structure of the sample

		Percent
Gender	Male	47%
	Female	53%
Age	18 - 25	34%
	26 - 35	33%
	36 - 45	16%
	46 - 55	11%
	56 and more	6%
Highest education level	Compulsory education	8%
	High school diploma	47%
	College degree	45%
Net monthly income	0 - 10 000 CZK	19%
	10 001 - 20 000 CZK	15%
	20 001 - 30 000 CZK	28%
	30 001 - 40 000 CZK	19%
	40 001 CZK and more	19%

Source: Own research

3. EMPIRICAL RESULTS

First, respondents were asked to choose their preferred way of travelling abroad on holiday. Altogether 67 % of interviewed people prefer travelling individually without using any travel agency services. The remaining 33 % prefer organized way of travelling with travel agency.

According to the preferred way of travelling, respondents were then asked to evaluate a total of 14 statements on a Likert scale of 1 to 7 (1 = strongly disagree, 7 = strongly agree). Those who chose preference of individual travelling were evaluating statements concerning the individual way of travelling and vice versa. Then using factor and cluster analysis, consumers were divided into several segments (clusters) based on how similarly they evaluated these statements.

3.1 Customer Typology on the Individual Travel Market

Firstly, factor analysis was performed for the 14 statements concerning individual travelling in order to reduce their number to only a few factors so that it would be easier to apply and interpret following cluster analysis. In the first step of the factor analysis, conditions for its application were verified. Primarily, the value of the KMO Index was confirmed. This index should reach a minimum value of 0.6, but ideally at least 0.7. The KMO Index was in this case equal to 0.911, it means that the first condition was met (see Table 2). Secondly, it was necessary to verify the result of Bartlett's Test of Sphericity, which indicates whether factor analysis can be used or not. However, the null hypothesis and alternative hypothesis had to be defined first:

- *H_0: Correlation between variables does not exist; H_1: Correlation between variables exists.*

All testing was performed at a 5% level of significance. As can be seen in Table 2, the resulting significance value was equal to zero, the null hypothesis was rejected, and the alternative hypothesis was accepted. It can be stated that there is a correlation between the variables, so it is possible to use the factor analysis.

Tab. 2: KMO and Barttlett's Test for Statements Concerning Individual Travelling

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0,911**
Bartlett's Test of Sphericity	Approx. Chi-Square	2270,732
	df	105
	Sig.	**0,000**

Source: Own research

Subsequently, the factor analysis was performed, based on the principal component method, Varimax rotation and Kaiser's rule, which states that the value of "Eigenvalues" is greater than 1. Original 14 statements were reduced to 3 new factors (Table 3). These four three factors explain 62,5 % of variance of the whole battery.

Tab. 3: Rotated Component Matrix with Factors that Are Influencing Individual Travellers

Rotated Component Matrix			
	Component		
	Benefits	**Trends**	**Target markets**
I perceive individual travelling as more convenient.	0,685		
COVID-19 pandemic has influenced travel market.	0,799		
I plan to travel individually also in the future.	0,898		
I can customize my travels more when travelling individually.	0,897		
Individual travelling is suitable for exploring more locations.	0,796		
I perceive individual travelling as safe.	0,664		
I always prefer individual travelling to the organized travelling with travel agency.	0,631		
Individual travelling offers more choices.	0,85		
Individual travelling influences future development of travel agencies.		0,658	
Individual travelling is much more accessible than organised travelling through travel agency.		0,571	
People started to travel more individually due to Covid-19 pandemic.		0,758	
Individual travelling is currently trendy.		0,749	
Individual travelling is suitable for all age categories.			0,742
Individual travelling is suitable for consumers with low incomes.			0,719

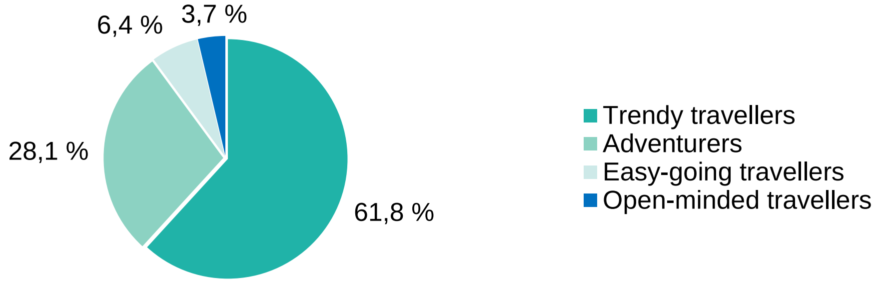
Source: Own research

Some statements correlated with more than one factor, but they have been assigned to those factors with which they have the greatest correlation. As can be seen in Table 3, The first new factor was given the name "Benefits". It contains eight original claims, which describe important benefits of individual travelling. The second newly created factor was called "Trends" and includes a total of four original statements regarding individual travelling being currently trendy. The third factor was called "Target markets" and includes last two claims concerning target consumers, who are protentional individual travellers.

Afterwards, a cluster analysis was performed. Main task of this analysis is to classify objects into segments (clusters) based on their similarities and differences. It is a multidimensional statistical method used for market segmentation (Hendl, 2009). Cluster analysis was performed using three newly created factors (see in the paragraph above). First, hierarchical clustering was applied using the Ward's method and the Euclidean square distance. Based on the largest distance between clusters i.e., the largest difference of the coefficients calculated from the end of the table, the number of clusters was set at four. Next, these four clusters were created not only using the hierarchical clustering as in the beginning, but also through the non-hierarchical clustering method, specifically using K-Means method. Results of both approaches were compared, finally the hierarchical approach was chosen for the final clustering, as more logical and easier to interpret clusters were created. The final number of clusters was also validated using ANOVA test. The four newly formed clusters were named based on the expressed level of agreement with the statements concerning individual travelling on holiday (see Table 4).

The first segment was named "Trendy travellers" and consists of 61,8 % of respondents travelling individually. The second largest group was entitled "Adventurers" and includes 28,1 % of individual travel market. The third segment was given a name "Easy-going travellers" with only 6,4 %. Finally, the last cluster was called "Open-minded travellers" and include remaining 3,7 % of individual travellers. The structure of the newly created segments on the individual travel market is shown in Figure 1.

Fig. 1: Structure of Clusters on the Individual Travel Market



Source: Own research

Trendy travellers agree in the biggest extend with the statement that the individual travelling is currently trendy and that it is more accessible way of travelling compared to the travelling through travel agencies (see Table 4). They also claim that individual travelling can influence future development of travel agencies and that Covid-19 pandemic significantly influenced the travel market. Out of all these segments, they want to travel individually also in the future the most. Most consumers from this segment are from age category 15 to 35 years and have college degree. They come from all income categories.

Adventurers strongly agree that individual travelling is more adventurous and that they can explore more locations this way. Compared to other segments, they agree the most with the statement that individual travelling is safe. On the contrary they claim that individual travelling is not suitable for consumers with lower incomes. Adventurers would like to also travel individually in the future. These consumers are mostly in the middle age categories (36 to 55 years old). Above average income is typical for this segment, with third of this group being customers with net monthly incomes higher than 40 000 CZK.

Easy-going travellers rate almost all the statements above average. In contrast to other segments, they do not agree with any of these claims and occupy more or less a neutral position. Maybe they do not prefer either the individual or organized way of travelling. The statement with which they agree the most is that people started to travel more individually due to Covid-19 pandemic. This segment is mostly in the age category 18 - 36 years and come from all income categories.

Open-minded travellers agree the most with the claims that individual travelling offers more choices and that they can customize their travels this way. Compared to other segments, they think that this way of travelling is suitable for customers with low incomes. They prefer individual travelling because it is cheap. They plan to travel individually also in the future. Most of these consumers are in the age category from 26 to 35 years and have a high school diploma. Their net monthly income is average or below average.

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Tab. 4: Average Values of Agreement with the Claims Concerning Individual Way of Travelling Abroad by Consumer Segments

Statements / Consumer segments	1st segment: **Trendy travellers**	2nd segment: **Adventurers**	3rd segment: **Easy-going travellers**	4th segment: **Open-minded travellers**
I perceive individual travelling as more convenient.	6,1	5,6	1,9	5,7
Individual travelling is suitable for all age categories.	5,1	4,4	2,9	3,4
Individual travelling is suitable for consumers with low incomes.	5,7	3,6	3,2	6,4
I can customize my travels more when travelling individually.	6,4	6,3	1,5	6,7
Individual travelling is suitable for exploring more locations.	6,2	6,8	2,0	5,5
I perceive individual travelling as safe.	5,1	5,8	2,5	4,3
I always prefer individual travelling to the organized travelling with travel agency.	6,0	5,2	2,2	5,6
Individual travelling offers more choices.	6,3	5,9	1,8	6,6
Individual travelling influences future development of travel agencies.	5,4	4,0	2,6	3,6
COVID-19 pandemic has influenced travel market.	6,6	6,4	1,8	5,0
People started to travel more individually due to Covid-19 pandemic.	5,6	3,4	3,7	2,2
Individual travelling is currently trendy.	6,5	3,8	2,9	4,4
Individual travelling is much more accessible than organised travelling through travel agency.	6,4	6,2	3,0	2,7
I plan to travel individually also in the future.	6,8	6,4	1,7	6,3

Source: Own research

3.2 Consumer Typology on the Organized Travel Market

The same procedure as for the individual travellers was used when creating customer typology on the organized travel market. First step was factor analysis, which was conducted for 14 statements concerning organized travelling. The main goal was to reduce the number of these variables to just few factors so that it would be easier to apply and interpret following cluster analysis. As the first step, conditions for application of factor analysis were verified. The KMO Index was in this case equal to 0.854, which is greater than 0,6, hence the first condition was confirmed (see Table 5). Then the Bartlett's Test of Sphericity was used to determine if it is possible to use factor analysis, whether there is a correlation between variables. The null and alternative hypothesis were defined as follows:

- *H0: Correlation between variables does not exist; H1: Correlation between variables exists.*

All testing was performed at a 5% level of significance. As can be visible in Table 5, the resulting significance value was equal to zero. The null hypothesis was rejected, and the alternative hypothesis was accepted. It is possible to claim that there is a correlation between the variables, thus it is possible to use the factor analysis.

Tab. 5: KMO and Bartlett's Test for Statements Concerning Organized Travelling

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,854
Bartlett's Test of Sphericity	Approx. Chi-Square	921,306
	df	105
	Sig.	<,001

Source: Own research

Afterwards, the factor analysis was performed based on the principal component method, Varimax rotation and Kaiser's rule. Original 14 statements were reduced to 3 new factors, as can be seen in Table 6. These three factors explain 61,2 % of variance of the whole battery.

Tab. 6: Rotated Component Matrix with Factors that Are Influencing Organized Travellers

Rotated Component Matrix			
	Component		
	Benefits	**Loyalty**	**Changeability**
Organised travelling through travel agency is safe.	0,839		
Organised travelling is very accessible.	0,802		
I will be travelling with travel agency also in the future.	0,735		
Travelling with travel agency is comfortable and easy.	0,86		
Covid-19 pandemic has influenced the travel market.	0,775		
Older people prefer organized travelling through travel agency.	0,759		
Organised travels are reliable.	0,804		
Organized travelling offers more choices than individual travelling.		0,738	
I have more information about the tour when travelling with travel agency.		0,699	
I consider myself as loyal customer, who purchases travel services through travel agency.		0,651	
Travelling through travel agency is cheaper than travelling individually.		0,637	
Individual travelling can not endanger the future of travel agencies.			0,631
I was thinking about travelling individually due to limited offers of travel agencies during Covid-19 pandemic.			0,716
Travel agencies are suitable for consumers with higher incomes.			0,708

Source: Own research

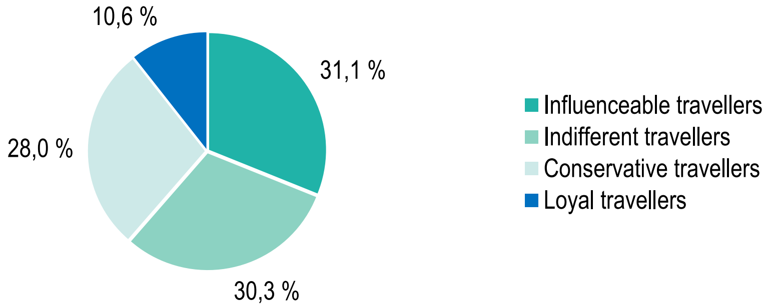
The first new factor was given the name "Benefits" (see Table 6). It encompasses seven original claims, which describe important benefits of organized travelling. The second factor was given label "Loyalty" and includes a total of four original statements which denote loyalty to organized travelling and its importance. Finally, last factor was called "Changeability" and depicts the possibility of changing the way of travelling abroad on holiday to individual travelling. This last factor also contains statement concerning organized travelling being expensive and more suitable for consumers with higher incomes.

Followingly, a cluster analysis was conducted using three newly created factors (see in the paragraph above). As the first step, hierarchical clustering was performed using the Ward's method and the Euclidean square distance. Based on the largest distance between clusters the number of clusters was set at four. Then these four clusters were created using both hierarchical and non-hierarchical approaches. The non-hierarchical clustering was applied using the K-Means method as it was previously used when segmenting the individual travel market.

Lastly, both results were compared and validated using ANOVA test, finally the hierarchical approach was chosen for the final clustering, as more logical and evenly distributed clusters were created. These four segments were given a name based on the expressed level of agreement with the statements concerning organized travelling abroad on holiday (see Table 7).

The first segment was called "Influenceable travellers" and consists of 31,1 % of respondents travelling the organized way. The second most numerous group was named "Indifferent travellers", total of 30,3 % of organized travellers belong to this segment. Third segment was marked as "Conservative travellers", which include 28 % of customers that are travelling with a travel agency. Finally, the last cluster was called "Loyal travellers" and occupy remaining 10,6 % of organized travel market. The structure of four newly created segments on the organized travel market is shown in Figure 2.

Fig. 2: Structure of Clusters on the Organized Travel Market



Source: Own research

Influenceable travellers agreed in the bigger extend with the claim that they were thinking about travelling individually due to limited offers of travel agencies during Covid-19 pandemic (see Table 7). They are also least loyal segment customers of travel agencies on the organized travel market. In addition, this segment least agrees with the statement that organized travelling is cheaper than the individual, on the contrary the think that organized way of travelling is more suitable for consumers with higher incomes. These consumers come from all age and income categories. They are mostly higher educated people with college degree.

Indifferent travellers rate almost all of the statements on average, they do not strongly agree with any of the claims. Their position is neutral, and they do not seem to have any strong relation to organized travelling. In fact, this segment seems to be travelling individually in the future, similarly like Influenceable travellers. The reason is that they do not consider themselves to be loyal customers of travel agencies and also they do not agree with the claim that they will be travelling with travel agencies in the future. They are very indifferent to the offers of travel agencies and organized way of travelling in general. Mostly these are consumers from 15 to 25 and 46 to 55 age category, their net monthly incomes are below average.

Conservative travellers are typical customers of travel agencies. They strongly agree with the claim that organized travelling is safe, comfortable, and easy. They value the comfort, convenience and security which travel agencies usually offer. It is a segment of people that do not want to step out of their "comfort zone". This segment would like to travel organized way also in the future. These customers mostly belong to the 36 to 45 age category and have average incomes, they are well educated with college degree. It is possible to assume that these are families with young children, so they want to enjoy comfortable and convenient holiday.

Loyal travellers consider themselves to be loyal customers of travel agencies, they rated this statement with highest marks. In addition, out of all the other segments, they are the ones who will most likely travel organized way also in the future. Similarly like the previous segment, they strongly agreed with the claims that when choosing organized way of travelling, they have more options, and it is very reliable, comfortable and safe. Majority of these customers come from 56+ age category and have only compulsory education. Their net monthly average income is one of the lowest, ranging from 0 to 20 000 CZK.

Tab. 6: Average Values of Agreement with the Claims Concerning Organized Way of Travelling Abroad by Consumer Segments

Statements / Consumer segments	1st segment: **Influenceable travellers**	2nd segment: **Indifferent travellers**	3rd segment: **Conservative travellers**	4th segment: **Loyal travellers**
Organized travelling through travel agency is safe.	5,7	4,6	6,6	6,3
Organized travelling is very accessible.	5,5	2,4	6,3	6,2
Travelling through travel agency is cheaper than travelling individually.	2,9	4,1	5,0	4,8
Travelling with travel agency is comfortable and easy.	5,7	2,3	6,7	6,6
Travel agencies are suitable for consumers with higher incomes.	5,3	4,3	4,9	3,6
Older people prefer organized travelling through travel agency.	5,9	2,1	5,9	5,6
Organized travels are reliable.	5,0	2,5	6,1	6,3
Organized travelling offers more choices than individual travelling.	2,1	4,8	4,5	3,4
Covid-19 pandemic has influenced the travel market.	6,2	2,2	6,5	5,9
I was thinking about travelling individually due to limited offers of travel agencies during Covid-19 pandemic.	5,8	4,6	4,6	1,9
I have more information about the tour when travelling with travel agency.	3,7	3,2	5,7	5,8
Individual travelling can not endanger the future of travel agencies.	4,2	3,9	5,5	3,4
I consider myself as loyal customer, who purchases travel services through travel agency.	3,2	3,4	5,3	6,3
I will be travelling with travel agency also in the future.	4,8	2,4	6,2	6,7

Source: Own research

CONCLUSION

A key part of this article was the analysis of customer's attitudes and creation of customer typology on the Czech travel market. Respondents expressed their agreement with a total of 14 statements based on the way of travelling they prefer – individual or organized. Based on how they evaluated these statements they were divided into several segments, according to their common characteristics, using factor and cluster analysis. Four segments were defined for individual travel market: "Trendy travellers", „Adventurers", „Easy-going travellers" and „Open-minded travellers". As for organized travel market, a total of four segments were defined as well: "Influenceable travellers", „Indifferent travellers", „Conservative travellers" and „Loyal travellers".

Some significant differences in attitudes between the individual and organized travel markets are visible. There are two segments on the organized travel market, Influenceable and Indifferent travellers, who are thinking about switching to individual way of travelling in the future. Combined together, they currently occupy 60 % of the organized travel market (see Figure 2). These two groups are customers that travel agencies will potentially loose in time, as they are not loyal to their services. With that being said, the individual travel market will probably grow even more in the future, which could be a serious problem for travel agencies. Compared with present situation on the individual travel market, there is only one small segment with 6% share on the market (see Figure 3), that maybe plans to switch to organized way of travelling, however these customers are very indifferent in their behaviour and their future preferences are unclear.

Typology which was executed in this paper is specific because it is divided to organized and individual travel market, in contrast to other published studies. In terms of customer typology, some segments that were created in this study are very similar to segments identified in previous articles. As an example, adventurers can be compared to explorers, which Cohen (1972) described. Secondly conservative travellers are comparable to recreational segment that Shah et al. (2022) identified. In contrary some new segments have been detected in this paper, examples are loyal and trendy travellers. Cohen (1972) determined total of four segments on travel market in his work, out of which two were named as individual and organized travellers. In this paper authors segmented the travel market more deeply, dividing it to two parts in the beginning– individual and organized market.

This study has potential limitations, these are mostly connected with sample and selection bias. The sample does not reflect the general population perfectly. This research is mostly applicable on younger generations because share of consumers from age category 46 years and older is limited, especially due to use of electronic surveying method. Lower is also share of respondents with compulsory and high school education than in general population in the Czech Republic. Additionally, there was no access to geographic scope of respondents, therefore it is possible they were not evenly distributed from the geographic point of view. Another possible limitation can be based on lack of previous research studies that divide travel market to organized and independent branches. There are only studies that focus on creating the typology on the travel market in general. Future research will be focused on overcoming these limitations.

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VNÍMÁNÍ MĚSTA V KONTEXTU HISTORICKÉ PAMÁTKY NA PŘÍKLADU CHEBSKÝCH KROVŮ
PERCEPTION OF THE MUNICIPALITY IN THE CONTEXT OF A HISTORICAL HERITAGE USING THE EXAMPLE OF THE CHEB TRUSESS

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Abstract: The paper deals with the perception and image of the town Cheb in the context of historical heritage. Since 2017, the town has been running a tour of historic trusses. The aim of the research was to determine the influence of this activity on the image of the town, or whether the historic roofs already form part of the image of the town at least for some Czech residents and citizens. So far, the image of the city has not been systematically investigated. Two surveys have been carried out, one among the city residents and one among the citizens of the Czech Republic. It was found that the city of Cheb is associated with historical heritage in the minds of the respondents. However, outside the town of Cheb the historical trusses are not yet sufficiently associated with the perception of it. The article also presents a semantic differential with citizens' perception of the town of Cheb.

Keywords: image, municipality, cultural heritage, historical trusses, Cheb, questionnaire survey.

JEL Classification: R1, Z0

ÚVOD

Vnímání a image obcí a regionů je aktuálním tématem. Obce i regiony stále intenzivněji vnímají vzájemné konkurenční postavení a potřebu marketingových aktivit pro udržení či získání nových obyvatel i návštěvníků. V poslední době je mezi stakeholdery v různých obcích a regionech diskutováno, které charakteristiky území by mohly v obyvatelích vyvolat hrdost na vlastní obec, region a více je tak s místem svázat. Často je diskutováno, jestli může být například historické dědictví zdrojem této hrdosti. Ve výzkumech tato otázka není příliš zachycována. Podle Foreta (2011, s. 75) lze image „chápat jako představu, obraz, či dokonce zdání o

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nějakém objektu. Jako každá subjektivní představa, obraz či zdání nemusí být nutně pravdivý.“ Image obcí a regionů se proměňuje poměrně pomalu.
Město Cheb je okresní město v Karlovarském kraji, které je bohaté na kulturně-historické atraktivity, které se nacházejí nejen v městské památkové rezervaci. Mezi známé památky patří soubor středověkých kupeckých domů Špalíček, císařská falc, kostel svatého Mikuláše. Od roku 2017 je v Chebu otevřena prohlídková trasa chebskými historickými krovy, které tvoří nejvýznamnější soubor těchto dřevěných konstrukcí datovaných od středověku do poloviny 20. století na území České republiky. Po roce 2017 je s krovy intenzivně pracováno jak oblasti výzkumné, tak popularizační. (Nadační fond Historický Cheb, 2022)
Cílem výzkumu bylo zjistit vliv této aktivity na image města, resp. jestli historické krovy již alespoň u některých obyvatel ČR a občanů tvoří součást image města. Dosud nebylo image města systematicky zkoumáno. Jedná se o první studii toho typu v Chebu a z toho důvodu nelze naprosto přesně určit kauzální vztah krovů na image města.

1. VNÍMÁNÍ OBCÍ A MĚST

Územní samosprávně celky lze rozdělit v základním členění na obce, městyse a města. Z pohledu samosprávného územního celku se jedná o významné rozdíly. Z pohledu marketingu jde o pohled principiálně stejný - marketing místa. Tyto územní celky se mohou lišit velikostí, historií a kulturou, lidnatostí a dalšími faktory. Ty všechny vstupují do utváření si obrazu o místě, a tedy image místa. Téma odlišení se a tvorby image míst je v současnosti velmi aktuálním tématem. Do středu zájmu se toto téma dostává i ve vědeckých disciplínách jako jsou plánování měst, aplikované geografie, urbánní sociologie, strategického managementu, regionálních politik, místní správy, ekonomiky venkova apod. (Martinez, 2016) Stejně tak, jako je to u produktového marketingu, i v marketingu míst je boj o zákazníka, kterého může představovat jak místní obyvatel, tak i návštěvník, ale i větší územní celky a partnerská uskupení, místní instituce a podniky. Často je spojeno se slovem image i slovo brand. V oblasti místa či turistické destinace je právě image velmi důležitou součástí produktu, resp. konkurenceschopnosti místa. (Ishida, Slevitch & Siamionava, 2016) Branding je dobrým startem bez, kterého jde vytvořit image hůře, ale image je pojmem širším. (Popescu & Corbons, 2011) Podle některých autorů (Aaker, 1996) by se zdálo, že brand celkově vystihuje image. Pod pojmem image rozumíme souhrnnou představu veřejnosti o určitém subjektu, která vzniká na základě chování subjektu, představ, postojů, názorů, informací a zkušeností. Vitouladiti (2014) vnímá image, jako projev potřeb, tužeb a motivů, které produkt uspokojuje. Kafka a Kotyza (2014) tvrdí, že image vzniká jako produkt komunikace mezi jednotlivcem (subjektem) a okolím (veřejností). Je sdělitelná, měnitelná a analyzovatelná. Působí na názory a chování (nejen nákupní) a podstatným způsobem je ovlivňuje. Značka je představována určitým identifikovatelným souborem asociací, které se k ní váží. Znamená to, že značka může mít i odlišný charakter, než má image celého místa. Florek (2014 v Glinska, Ryciuk & Jeseviciuteufartiene, 2015) tvrdí, že komponenty image místa zahrnují na jedné straně hmotné elementy (např. historická místa, architektura, nákupní centra, sportovní zařízení, ubytovací infrastrukturu, lokální produkty apod.) a měřitelné ukazatele (např. trhy, lidské zdroje) a na straně druhé jsou nehmotné elementy (např. místní nálada, tradice a víra) a neměřitelné ukazatele (např. kreativita rezidentů, lidové umění). Anholt (2006) identifikoval šest dimenzí image míst: (1) současné a mezinárodní postavení místa; (2) místo, vnímání fyzických aspektů místa; (3) potenciál, možnosti ekonomické a vzdělávací; (4) život, místní lifestyle; (5) lidé, vztahy místních k návštěvníkům; (6) prerekvizity, vnímání základních kvalit místa, např. co by na místě bylo dobré, kdyby zde člověk žil. Hung (et. al., 2012) tvrdí, že image musí zákazníkům poskytovat různé hodnoty, které člení na funkční, sociální, emocionální, vědomé a podmíněné. Velkou roli v tvorbě image hrají znalosti a zkušenosti. Lidé si vytvářejí obrázek o místo i zprostředkovaně na základě různých informačních zdrojů. Může dojít tedy k záměrnému či ne záměrné zkreslování image image na základě špatné informace, či špatně zprostředkované informace. Potřebu posuzovat image na základě osobní zkušenosti zdůrazňuje Pike (2016). Z tohoto důvodu je důležité rozlišovat kognitivní, afektivní a konativní část image. Stylos, Vassiliadis, Bellou a Andronikidis (2016) zjistili, že důležitá jsou i osobností normativní přesvědčení, která mají vliv na konativní část image a na celkovou holistickou image. Právě kognitivní část image je vytvářena uměle prostřednictvím znalostí o místě načerpaných z různých oficiálních i neoficiálních zdrojů. Hrají zde velkou roli různí ovlivňovatelé (oficiální vzdělávací systém, médi, rodina, kultura a sociální skupina). Tato část se pojí s hodnocením, předsudky a představami návštěvníka. Afektivní část je založena na emociálním vztahu, který si návštěvník vytváří před cestou, během cesty a po cestě. Zde záleží na tom, jak vzdálená je konativní část image od reality a jak na to emocionálně bude návštěvník reagovat. Konativní část image je spojena se zájmem a osobnostními postoji jedince. Tato část image aktivizuje zájem jedince o místo, které pak vnímá ve vztahu k sobě samému (jako vysněné místo, ideální právě pro něj). (Moon, Connaughton, Lee, 2013; Stylos et. al., 2016, Vitouladiti, 2014).

2. METODIKA

Stejně jako je nejasná definice image, není ani ve výzkumu image používaná jediná univerzální metodika. Pike (2016) zkoumal vědecké články na toto téma vydané mezi lety 1973-2007 a zjistil, že kvantitativní metody sběru dat o image převažují nad těmi kvalitativními. Ve výzkumných metodách je pozornost věnována volným asociacím, nebo obsahové analýze textů a hodnocení. Farias (et al., 2013) tvrdí, že nejběžněji se používají metody škálování (sémantický diferenciál, Likertova škála, poziční škály) nebo přístup fenomenologie, průzkum názorů, spokojenosti, data mining apod. Ivanov, Illem a Liang (2010) zdůrazňují zaměření výzkumu na vnímání image návštěvníkem, formování image, komponenty image (kognitivní, afektivní, konativní) a ovlivňující faktory.

Hlavní výzkumnou otázkou bylo zjištění vnímání města Chebu obyvateli České republiky (tedy potenciální návštěvníci města) a obyvateli města Cheb. Specificky pak autory zajímalo, jak se ve vnímání projeví historické dědictví města a specificky chebské historické krovy.

Bylo využito dvou sběrů primárních dat. Pro sběr dat od obyvatel České republiky (s výjimkou občanů města) bylo využito reprezentativního panelového výzkumu, který realizovala výzkumná agentura. Celkový počet respondentů činil 1009 a jednalo se o reprezentativní vzorek obecné populace 18+. Jednalo se o kvótní výběr s respektováním charakteristik pohlaví, věku, vzdělání a velikosti místa bydliště. Sběr proběhl metodou CAWI (computer aided web interviewing). Sběr dat proběhl v první polovině roku 2021. Dotazovány byly kromě demografických kritérií čtyři otázky: první asociace s městem Cheb (proměnná - q1 - Co Vás napadne, když se řekne Cheb?, možnost až pěti odpovědí, tj. q1_1 až q1_5), návštěva města, zdroj informací o městě, typické charakteristiky města (proměnná q4 - Jak byste charakterizoval/a Cheb? Co je pro toto město typické?, možnost až pěti odpovědí, tj. q4_1 až q4_5).

Proměnné q1 a q4 byly zpracovány pomocí metod zpracování přirozeného jazyka (angl. NLP - Natural Language Programming) s využitím jazyka Python 3.7 a knihovny Transformers (Wolf et al., 2020).

Proměnné q1 a q4 byly zpracovány pomocí postupů NLP (Natural Language Programming) s využitím Python 3.7 a knihovny Transformers (https://huggingface.co/docs/transformers/index). Každá neprázdná odpověď z proměnných q1_1 – q1_5 a q4_1 – q4_5 je uvažována jako dokument a pomocí uvedených postupů je zkoumána podobnost těchto dokumentů a pomocí hierarchické clusterové k-means analýzy jsou sloučeny sémanticky podobné dokumenty do stejné třídy a kód této třídy je uveden v souhrnné proměnné q1 (q4).

Při analýze dokumentů byl pro jejich reprezentaci využit algoritmus fastText (Bojanowski et al., 2017). Pro reprezentaci slov byly použity tzv. slovní vektory (angl. word embeddings) konkrétně byl použit model cc.cs.300.bin, ve kterém je každé z 2 mil. slov reprezentováno vektorem o dimenzi 300. Vektor dokumentu je odvozen od vektorů jednotlivých slov jako jejich průměr. Pokud není slovo v korpusu nalezeno, je aplikována pro dané slovo stemming. Po tomto procesu je každý dokument (odpověď respondenta) reprezentována vektorem a na vektory všech dokumentů je aplikován hierarchický k-means algoritmus. Po vytvoření zadaného počtu tříd (10) na první úrovni jsou ručně vybrány třídy s větším množstvím různorodých dokumentů

a v další úrovni je shlukovací algoritmus aplikován pouze na tyto vybrané třídy. Tento proces může pokračovat v několika úrovních.
Na konec je po prohlédnutí výsledných tříd aplikován zpětný proces slučování tříd, jejichž dokumenty spolu souvisí. Výsledkem celého procesu je klasifikace každé z odpovědi respondenta q1_1 – q1_5 a q4_1 – q4_5 klasifikována do vybrané třídy.
Pokud respondent vyplnil více než jednu odpověď z možných pěti, a další odpověď je klasifikována jiným kódem než ostatní odpovědi daného respondenta, vytvoříme další nový záznam respondenta, který má u všech ostatních proměnných stejné hodnoty a pouze v proměnné dané odpovědi má jinou hodnotu kódu. Tímto postupem rozšiřujeme počet respondentů jak při analýze proměnné q1, tak i v případě q4. Takto modifikovaný datový soubor se využívá pouze pro analýzy, ve kterých vystupují proměnné odpovědí q1 a q4.

Tab. 1 Struktura respondentů - obyvatelé ČR

n=1009	**počet**	**podíl**
Ženy	518	51,34 %
Muži	491	48,66 %
18 - 29 let	153	15,16 %
30 - 44 let	282	27,95 %
45 - 59 let	252	24,98 %
60 let a více	322	31,91 %
Základní	118	11,69 %
Střední bez maturity	335	33,20 %
Maturita	355	35,18 %
VŠ	201	19,92 %
Do 999 obyv.	171	16,95 %
1000-4.999 obyv.	220	21,80 %
5.000-19.999 obyv.	186	18,43 %
20.000-99.999 obyv.	209	20,71 %
100.000 a více obyv.	223	22,10 %

Hlavní město Praha	126	12,49 %
Středočeský kraj	127	12,59 %
Jihočeský kraj	60	5,95%
Plzeňský kraj	55	5,45%
Karlovarský kraj	28	2,78%
Ústecký kraj	74	7,33%
Liberecký kraj	41	4,06%
Královéhradecký kraj	54	5,35%
Pardubický kraj	50	4,96%
Vysočina	48	4,76%
Jihomoravský kraj	112	11,10 %
Olomoucký kraj	61	6,05%
Zlínský kraj	58	5,75%
Moravskoslezský kraj	115	11,40 %
Zaměstnanec	456	45,19 %
Podnikatel/OSVČ	52	5,15%
Na mateřské/rodičovské dovolené	51	5,05%
Student, žák, učeň	103	10,21 %
Důchodce	276	27,35 %
Nezaměstnaný/v domácnosti	71	7,04%

Zdroj. Vlastní výzkum, 2021

Druhý sběr dat probíhal také v roce 2021 a zaměřil se primárně na občany města Cheb. Hlavní zdroj respondentů byl online dotazník (CAWI), ale pro doplnění bylo využito i dotazníků tištěných, které byly k dispozici v městské knihovně a na Turistickém informačním centru. Dotazník nicméně umožňoval zjištění dat i od bývalých občanů města Cheb a jeho návštěvníků (byly využity filtrační otázky). Odkaz na dotazník byl zveřejněn na webových stránkách města, opakovaně byl sdílen na sociálních sítích města. Jednalo se tedy o záměrný dostupný výběr. Celkově bylo získáno 945 respondentů, z nichž 742 byli občané města Cheb, 147 dříve v Chebu žilo a 56 bylo návštěvníků města. I v tomto výzkumu byly zjišťovány spontánní asociace s městem Cheb a hledány typické asociace s městem. Respondenti také měli charakterizovat město, doporučit zajímavosti návštěvníkům města a poslední část dotazníku už byla věnována přímo historickým krovům.

Tab. 2 Struktura respondentů - obyvatelé Chebu

n=945	**počet**	**podíl**
Ženy	600	63,49%
Muži	318	33,65%
do 26 let	132	13,97%

27 -40 let	332	35,13%
41 - 65 let	394	41,69%
66 let a více	86	9,10%
Základní	38	4,02%
Střední bez maturity	164	17,35%
Maturita	438	46,35%
VŠ	304	32,17%
Zaměstnanec	569	60,21%
Podnikatel/OSVČ	100	10,58%
Na mateřské/rodičovské dovolené	78	8,25%
Student, žák, učeň	70	7,41%
Důchodce	111	11,75%
Nezaměstnaný/v domácnosti	15	1,59%

Zdroj. Vlastní výzkum, 2021

Hlavní výzkumná otázka byla operacionalizováno do dílčích hypotéz, které zkoumaly závislost mezi vybranými zjištěnými proměnnými. Pro vyhodnocení dat byla využita běžná popisná statistika a pro ověření hypotéz různé typy vhodných statistických testů v závislosti na typu proměnné a rozdělení získaných dat (lineární regrese, Mann-Whitney test, a další).

3. HLAVNÍ VÝSTUPY A JEJICH DISKUSE

Z frekvenční analýzy v tab. 3 spontánních asociací s městem Cheb u respondentů (proměnná q1), kteří v Chebu nežijí, vyplynulo, že lze odpovědi roztřídit do 10 shluků (tříd), přičemž byly brány v potaz odpovědi od více než 30 respondentů.

Tab. 5 Spontánní asociace s městem Cheb – mimochebští

Počet respondentů	Charakteristika odpovědí ve třídě
499	Město – historické, krásné, romské, okresní, hraniční, smutné, malé, velké, královské, západočeské, vzdálené, lázeňské, okresní
412	Lokalita – západní, na hranici, hraniční, Čechy, Karlovarský kraj, město na západě
126	Různorodé – zavraždění Albrechta z Valdštejna, architektura, pohraničí, Vietnamci, prostitutky, cizinci, historie
92	Špalíček
72	Památky – historické centrum, náměstí, lázně, muzeum, nádraží
71	Kraj-Západočeský kraj, Karlovarský kraj, Romové, okres, Žatecký chmelový kraj, Královehradecký kraj, Ústecky kraj
58	Nevím, nikdy jsem tam nebyl/a, neznám, hokej, fotbal, žije tam kamarád
52	Nic, nic zajímavého, bohužel nic
38	Turistické historické památky-zámek, chebský hrad, kostel, lázně, domy na náměstí, Černá věž, trhy, Špalíček, hradby, hrázděné domy, falc,
35	Chléb, chmel, pivo, jídlo, chlast, pečivo, hlad, sex, tanec, léčivá voda, mouka, drogy, pití

Zdroj. Vlastní výzkum, 2022

První dvě třídy se obsahově překrývají zejména s ohledem na lokalizaci města. Výrazně nejvíce respondentů jako první napadne lokalita města na západě, při hranici, u Německa, v Karlovarském kraji apod. nebo charakterizují město vybraným přívlastkem. Počty je nutné brát jako orientační zejména s ohledem na příslušnost některých termínů do více tříd. Např. Špalíček v různém kontextu v odpovědích může být součástí více tříd. „Nejčistší" třída obsahující Špalíček zahrnuje odpovědi od 92 respondentů. Zmínka o Špalíčku se objevuje i u dalších šesti respondentů, ale s ohledem na kontext jsou tyto odpovědi zařazeny do jiných tříd. Celkově tři třídy s celkově 202 respondenty odkazují primárně na kulturně-historických charakter města.
Za zmínku také stojí, že někteří respondenti neuměli Cheb geograficky zařadit apod.
V tab. 4 jsou prezentovány výstupy pro frekvenční analýzy pro proměnnou q4, tedy co je pro město Cheb typické, charakteristické. Odpovědi lze opět rozdělit do 10 skupin s minimálně 20 respondenty.

Tab. 4 Frekvenční analýza - typické charakteristiky města Cheb - mimochebští

Počet respondentů	Charakteristika odpovědí ve třídě
468	Nic, nevím, netuším, neznám, nenavštívil, nepamatuji si, nevzpomenu si, neuvedl/a, nezajímá, je to daleko.
184	Památky – náměstí, historické centrum, hrad, Špalíček, fotbal, posádka
148	Město – staré, malé, velké, příhraniční, v Karlovarském kraji, historické, s hrázděnými domy, s památkami, lázeňské, německé, Romů
142	Lokalita – u hranic, u hranic s Německem, západ, Západní Čechy, blízko lázní, u Františkových lázní, daleko od Prahy, pohraniční, blízkost Německa, přechod do Německa, město na západě, blízko Německa, velká tržnice
86	Malé město, malé uličky, malý region, velké zajímavé náměstí, velké vlakové nádraží, vysoké šikmé střechy, malé městečko u Německa

42	Historie, starobylé město, krásné historické centrum, zachovalé centrum, památky, historické budovy
33	Negativní-Cizinci, hodně Romů, hodně nepřizpůsobivých, drsné podmínky, zemětřesení, nedostatek pracovních příležitostí, neuspořádané, nehezká atmosféra, drsné podmínky, nepořádek, Vietnamci
30	Špalíček, Františkáni, Dominikánská klášter, střechy, galerie, vietnamská tržnice
29	Výroba kol Eska
24	Vodní nádrž, Skalka, řeka Ohře, příroda, fontána, hezká pěší zóna, těžba, Slavkovský les, památková zóna zeleň, řeka Odra, krajina

Zdroj. Vlastní výzkum, 2022

Výrazně nejvíce respondentů (přibližně polovina) nemá žádnou představu o městě či jeho charakteristice. Dále téměř 200 respondentů charakterizuje město jako historické, s památkami, hradem, Špalíčkem, ale i vojenskou posádkou a kdysi prvoligovým fotbalem. Podobně lze popsat i další skupinu odpovědí, které charakterizují město jako historické, lázeňské, německé, město Romů, město s hrázděnými domy. Přibližně stejné množství respondentů město charakterizuje s ohledem na lokalitu jako město na západě, při hranici, u Německa, daleko od Prahy. Některé skupiny zejména s ohledem na historii a památky lze sloučit do jedné. Např. jedna skupina je charakteristická jmenováním konkrétních historických památek.
Je zřetelné, že historické památky jsou velmi často spojované s městem, zvláště u respondentů, kteří mají o města vůbec povědomí, i zde jsou zřetelné nepřesnosti v odpovědích/neznalosti některých respondentů.
V kontextu historických krovů, byly jednou přímo jmenovány (starší ženou z Pardubického kraje) a často se v odpovědích objevuje zmínka o (šikmých) střechách.

Tab. 5 Tonalita zmínek

Tonalita hodnocení	**Počet respondentů**	**Podíl**
Pouze pozitivní	688	77,30%
Pouze negativní	124	13,93%
Pozitivní i negativní	69	7,75%
Neutrální/neuvedeno	64	6,77%

Zdroj. Vlastní výzkum, 2022

Tab. 6 Frekvenční analýza - typické charakteristiky města Cheb – „chebští"

Typ zmínky	**Počet zmínek**
Špalíček	266
centrum města	229
domov	167
historie	109
rodné město	100
Chebský hrad	87
Romové	86
krásné/hezké	86
Areál krajinné výstavy (krajinka, Poohří)	67
drogy/narkomani	42
nepořádek/špína	42
náměstí	38

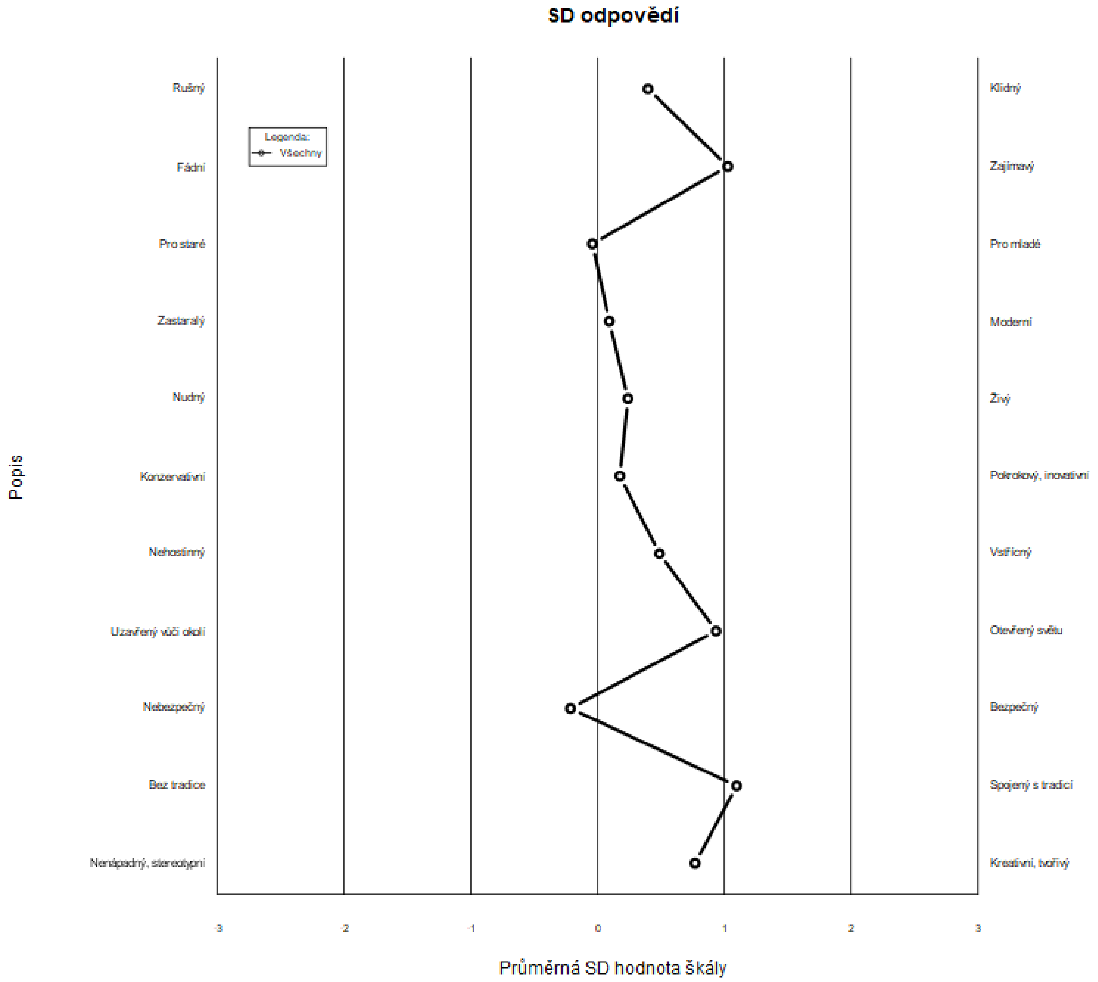
bezdomovci	33
prostituce	32
obyvatelstvo	29
nepřizpůsobiví	24
Němci/Německo	19
nebezpečí	18
památky	17
pěší zóna	17
rozvoj	17
pohraničí	16
starosta/úřad - radnice/vedení/politika	15
Vietnamci	13
Valdštejn	12
vzdělání/školy	12
příroda	11
nádraží	10
Ohře - řeka	10
krovy	4
zmrzlina, FIJO, kultura, dětství, okolí, Jesenice, sport, staré město, park, průmysl, Černá věž, rodiny, kostely, divadlo, akce (slavnosti), práce, muzeum, doktoři/zdrav péče, služby, potenciál, nuda, architektura, Galerie G4, Wolkerova, životní podmínky	méně než 10, více než 1
jiné	25

Zdroj. Vlastní výzkum, 2022

V rámci průzkumu, který probíhal se zaměřením na chebské občany, byly také nejdříve zkoumány spontánní asociace s městem. V tab. 6 naleznete frekvenční analýzu odpovědí. Nejčastěji je zmiňován Špalíček, centrum města, historický charakter a samozřejmě je pro mnoho dotazovaných město domovem, resp. rodným městem. V průměru respondenti uváděli 1,9 asociací. Historické krovy přímo zmínili čtyři respondenti. Odpovědi (viz tab. 5) byly dále vyhodnoceny dle tonality (pozitivní, negativní, neutrální), neboť je třeba sledovat odpovědi v celém jejich kontextu, ne pouze přes jednotlivá slova. Více než 77 % respondentů uvádělo aspekty pozitivní, necelých 14 % bylo pouze negativních a necelých 8 % vidělo jak pozitivní, tak negativní stránky města. Na obr. 1 je prezentováno vnímaní charakteristik města Cheb s využitím sémantického diferenciálu. Image města je spíše pozitivnější, spojený s tradicí.

https://doi.org/10.24132/jbt.2022.12.2.73_87

Obr. 1 Image města Cheb - sémantický diferenciál - obyvatelé města

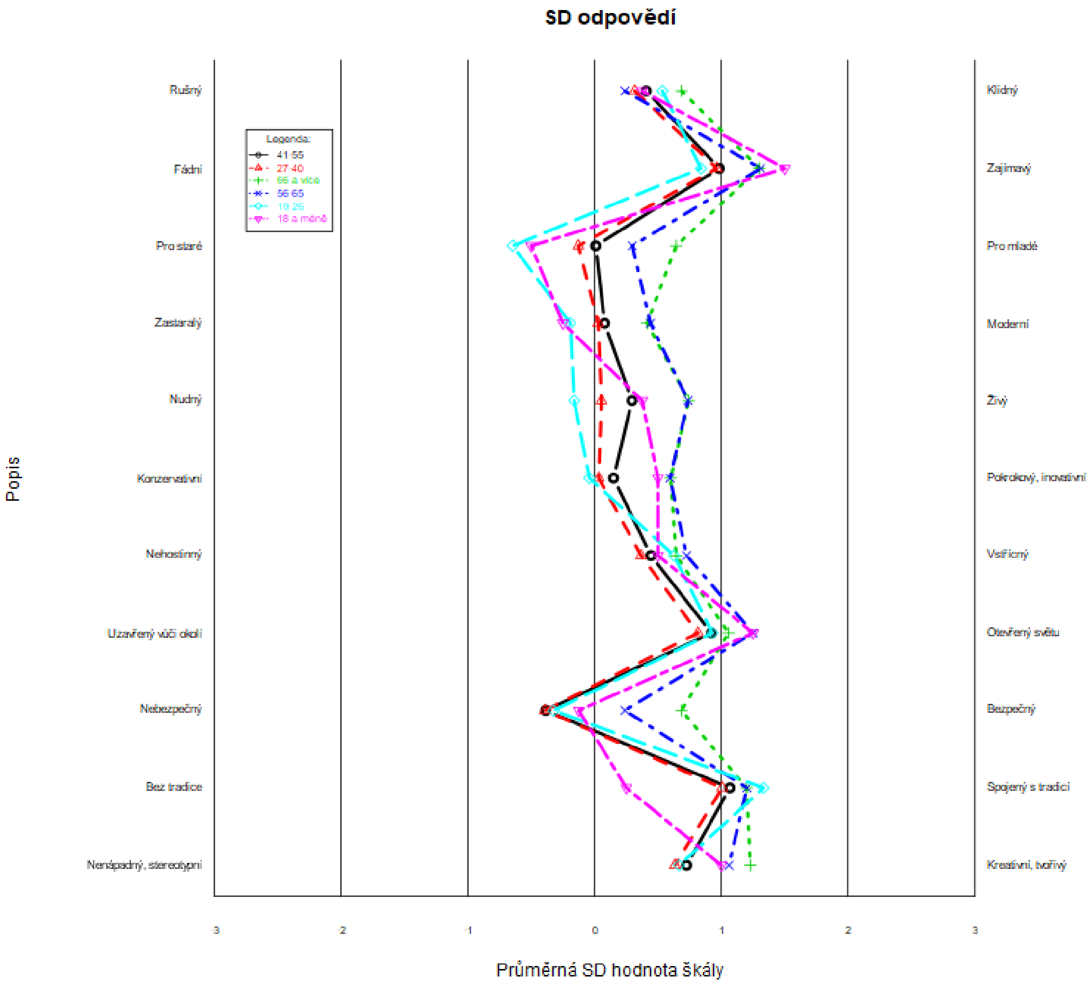


Zdroj. Vlastní výzkum, 2022

Na obr. 2 je uvedený sémantický diferenciál s rozdílným pohledem dle jednotlivých věkových skupin. Z obrázku vyplývá, že se liší pohled na jednotlivé charakteristiky více u mladších a starších osob, přičemž mladší věková skupina se více přiklání ke střední hodnotě. Nicméně rozdíly jsou u jednotlivých skupin spíše zanedbatelné.

https://doi.org/10.24132/jbt.2022.12.2.73_87

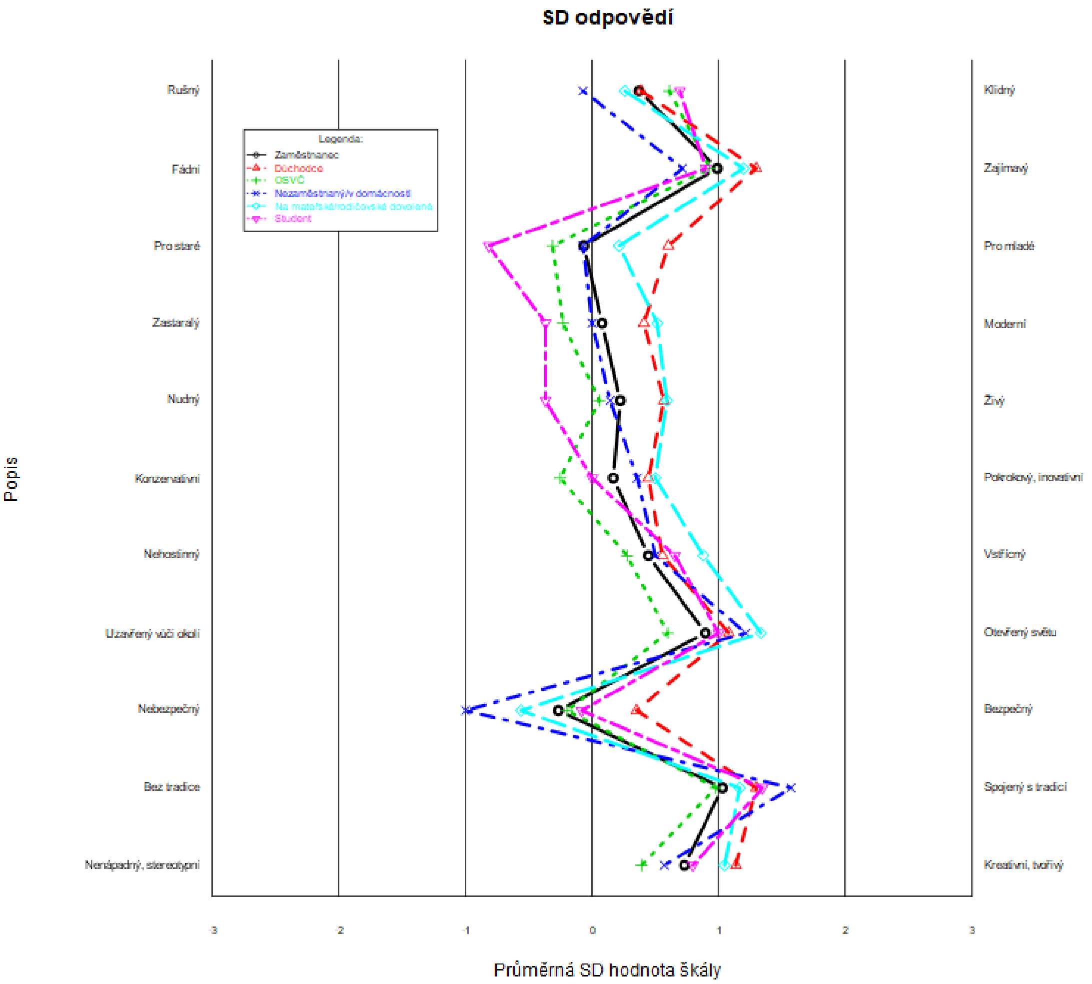
Obr. 2 Sémantický diferenciál dle věkových skupin



Zdroj. Vlastní výzkum, 2022

Obr. 3 ukazuje pohled na jednotlivé charakteristiky vnímání města Chebu dle sociálního statusu obyvatel. Také v tomto případě jsou rozdíly mezi jednotlivými skupinami spíše zanedbatelné a odpovědi kopírují podobný trend. Více se odlišuje pouze vnímání města jako více „pro staré“ z pohledu studentů nebo jako více „nebezpečné“ z pohledu osob nezaměstnaných, případně v domácnosti.

Obr. 3 Sémantický diferenciál dle sociálního statusu



Zdroj. Vlastní výzkum, 2022

Respondenti byli také dotazováni, které zajímavosti by měl návštěvník města Cheb určitě vidět. Souhrn výsledků je v tab. 7. Je zřejmé, že se profilují tři klíčové atraktivity – Chebský hrad, Areál krajinné výstavy u řeky Ohře a historické centrum s náměstím a Špalíčkem. Historické krovy byly zmíněny 70 respondenty, což je řadí až za muzeum. Z dalších otázek vyplynulo, že je navštívilo 164 respondentů.

Tab. 7 Doporučované atraktivity města

Atraktivita	**Počet zmínek**
Chebský hrad/falc	604
Areál krajinné výstavy (krajinka, Poohří)	541
náměstí	351
Špalíček	294
kostel sv. Mikuláše	126
muzeum	107
centrum	84
historické krovy	**70**
okolí	48
Galerie G4	42
divadlo	42
klášterní zahrada	42
Ohře - řeka	37
přehrady	34
staré město	30
Bismarckova rozhledna	28
historie	23
Zelená Hora	21
pěší zóna	19
Černá věž	19
památky	15
Loreta	14
cyklostezky	12
Chebské dvorky	12
Skalka	12
Jesenice	12
akce (slavnosti, trhy)	10
vyhlídka	10
knihovna, příroda, nádraží, Komorní Hůrka, parky, restaurace, lanové centrum, letiště, radnice, Egerwarte, minigolf	méně než 10, více než 2

Zdroj. Vlastní výzkum, 2022

Je tedy zřejmé, že historické krovy, prozatím nejsou zcela zakotveny v myslích občanů jako doporučeníhodná zajímavost města. To můžeme mít dvě příčiny: prozatím menší známost i u občanů města, nemusí být považovány za takovou zajímavost, kterou je důležité doporučit. Ve výzkumech jsou tedy pouze iniciální zmínky o historických krovech. V případných opakovaných výzkumech bude zajímavé sledovat posuny ve vnímání krovů, ale i image města jako takového.

Realizované výzkumy jsou pro město Cheb první svého druhu a je nutné je považovat za první sondu. Je samozřejmé, že vypovídací charakter budou mít data až při případném dlouhodobém opakovaném sledování. Vypovídací charakter druhé průzkumu (u obyvatel města) je omezen s ohledem na způsob sběru dat a výsledný vzorek respondentů.

ZÁVĚR

Město Cheb je u většiny respondentů obou průzkumů (občané ČR, obyvatelé města Cheb) vnímané jako město s historickým charakterem a atraktivitami. Je ale také patrné, že město má i své negativní aspekty, které ale ve spontánních odpovědích nepřevažují. Je však mnoho občanů ČR, kteří si ve spojení s městem nepředstavilo nic, případně byly spontánní reakce bez vztahu k městu. To jistě skýtá potenciál pro další marketingové aktivity města, a to nejen ve spojení s historickými krovy.

Historické krovy jsou poměrně mladou atraktivitou (prohlídková trasa spuštěna v roce 2017), v obou výzkumech realizovaných v roce 2021 se tak objevují spíše méně často, a z hlediska spontánního propojení velmi sporadicky. To však odpovídá obecně delšímu času pro změnu image míst.

Další zajímavé směry výzkumu by mohla skýtat oblast hrdosti (local pride) a provázání realizovaných průzkumů, jak na úrovni města, tak i kraje.

Poděkování

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E-COMMERCE AS A MODERN PARADIGM OF FORMATION AND USE OF MARKETING TOOLS

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Abstract: E-commerce is a big part of the economy and is extremely important for businesses that sell their products or services online. Thanks to e-commerce, businesses have the opportunity to reach more customers, because, due to the current global economic challenges, quite a lot of people shop online, which is the fastest-growing retail market. Therefore, digital marketing allows businesses to expand their target market and increase sales of products or services and the effectiveness of communications with their customers. In this article, we considered the theoretical aspects and main types of e-commerce researched the marketing tools, and analyzed the development trends and the basis of digitalization, the accelerated development of which was mostly caused by the Covid-19 pandemic, during which
e-commerce and retail trade played an important role both for the economy and for society as a whole. On the basis of the conducted study of e-commerce in European countries, enterprises are offered to expand various types of digital activities, implement digital innovations and rethink interaction and communication with consumers.

Keywords: e-commerce, digital marketing, marketing tools, digitization, trade.

JEL Classification: L81, M31, M21

INTRODUCTION

The rapid development of science and technology in various types of economic activity led to the emergence of new business methods to meet the needs of consumers. At the beginning of the 21st century, humanity felt the impact of the global information revolution, which is gradually changing the world. Almost all business entities in the world are focusing on improving Internet connections to increase the efficiency of business activities. For many entrepreneurs, the Internet is the main way of spreading information about the brand, the activities of the organization, products, services and invitations to cooperation. Therefore, consumers increasingly spend time expanding various types of digital activities. There is no doubt that the accessibility of the Internet, mobile technology and digital innovation are redefining every interaction between businesses and consumers, and will continue to empower and change the way we live. The proliferation of access and utility continues to change the way consumers use information, interfaces, and exchanges not only to simplify their lives but also to add flexibility and personalization to increasingly demanding lives. Of course, this has spread to communication platforms, spaces of social interaction, information portals, financial transactions, game and video content, which includes the growing interest in shopping on the Internet, E-commerce is gaining more and more development. Therefore, success and continued growth for manufacturers and retailers will lie in creating strategic advantages in converged channels, touchpoints and journey-to-purchase experiences, in both developed and emerging markets, as well as evolving and emerging categories.

It is worth emphasizing that over the past two or three years, retailers have gained a lot of digitalization experience. This acceleration was largely driven by the Covid-19 pandemic, during which e-commerce and retail played an important role for both the economy and society (Bartsch et al., 2021). These changes are reflected in results, which show that total European e-commerce will grow to €718 billion in 2021, with a growth rate of 13%. This is more than 633 billion euros in 2020. In 2022, the growth rate is predicted to continue. However, growth is expected to stabilize somewhat, with a corresponding growth rate of 11% and a turnover of €797 billion (European E-commerce report, 2022).

It would seem that after more than two years, we are now slowly moving away from the pandemic and returning to the usual rhythm of life, but at the end of February 2022, the whole world witnessed a great conflict, and European countries felt its consequences. Russia's war against Ukraine and the terrible consequences for Ukrainians raised the issue of security and peace in Europe. It should be noted that the war showed the readiness of Europeans to help each other in the most difficult times, putting the safety of the Ukrainian people as a priority, but the unfortunate consequences of the war are felt throughout the continent. At this stage, it is difficult to predict its long-term consequences, but the war is already having a serious impact on European and world markets. Its course has fueled inflation and raised energy prices, affecting purchasing power and consumer confidence, and disrupting global supply chains already weakened by the pandemic.

The purpose of this article is to investigate the theoretical aspects and main types of e-commerce, analyze statistical information, research marketing tools and the basis of digitalization, the accelerated development of which was caused, including by the Covid-19 pandemic, in order to identify and substantiate the main priority trends and directions for the further development of e-commerce as a modern paradigm of formation and use of marketing tools.

1. LITERARY RESEARCH

The topic of E-commerce has recently been quite relevant and arouses the interest of many European and global scientists, as it is a rather broad and timely topic in the context of the development of societies and the economy, and requires constant study, development and improvement. This issue is considered by scientists from different points of view using separate methods and marketing tools. Fichter (2002) considers E-commerce as a business activity of buying and selling goods and services, which involves the interaction of parties based on information networks (without direct physical contact). Gajda (2020) points out that it can also refer to other online activities such as online auctions, ticketing and banking.
E-commerce is an integral part of many businesses that rely on selling products or services online. Research Chaudhary (2017) showed that the development of information and computer technologies and the global progress and development of society in this direction, and therefore the development of social media and other components in this direction, actually have a decisive influence on the development of E-commerce. So, the history of e-commerce begins with the first ever sale on the Internet: on August 11, 1994, a man sold a Sting CD to a friend through his website NetMarket, an American retail platform. And this is the first example of how a consumer buys a product from a company through the World Wide Web - or electronic commerce, as it is commonly known today (Lewis, 1994). Prats and Hernandez (2021) showed that the dynamics in the economic sector and the weakening of the influence of technological and electronic media have encouraged society to strengthen the mechanisms that ensure prompt access to brands, products and services. Therefore, e-commerce for manufacturing entrepreneurs is a way to reveal and increase the visibility of their brands, products and services, to build good relationships between consumers and partners. Accordingly, manufacturing enterprises during the digital transition have integrated e-commerce into their business model, and in turn have significantly strengthened the marketing of their brand, product and service.

Indeed, in recent years, the development of e-commerce platforms is developing rapidly and the marketing of e-commerce data is becoming more and more critical, Huang (2021) argues According to his opinion, large e-commerce platforms and companies are starting to analyze the basic information about their customers, extracting useful information from it, accurately checking the needs of customers in order to develop targeted marketing programs, which in turn allow to optimize advertising costs and significantly enrich the enterprise. making a profit. Based on the analysis of big data and the application of precision marketing, enterprises can develop an accurate marketing plan that will meet the characteristics of e-commerce and a personalized system of precision marketing, which actually allows the application of various marketing methods to optimize and develop innovative marketing strategies and improve business efficiency. According to Liu Qian (2021), in the Internet era, the rapid development of e-commerce depends on the maturity of the social regime and the systematic and diversified management regime. Therefore, today, the marketing mode of social e-commerce has also changed from text marketing to short video marketing, and the marketing strategy of short video marketing is based on the essence of social e-commerce, translating its delivery channels and announcing usefulness into the interactive mode of people and goods with the help of various network symbols, forming a video-viewing cycle focusing on e-commerce purchase anchors.

Based on literature research, the main types of e-commerce were determined:

- business-to-consumer (B2C): B2C is the most common form of e-commerce. When customers buy something from an online store, they are participating in business-to-consumer e-commerce (Ismoilova et al., 2021; Kunešová & Eger, 2017);
- business-to-business (B2B): B2B is when businesses sell raw materials or parts via e-commerce to other companies who will then use those materials to create their own products (Fujimura & Ishino, 2020);
- consumer-to-consumer (C2C): C2C e-commerce is when consumers sell to other consumers. Sites like eBay and Olx are examples of this kind of e-commerce;
- consumer-to-business (C2B): C2B e-commerce is when consumers sell their products or services to businesses (Ismoilova et al., 2021);
- business administration (B2A): B2A e-commerce refers to transactions between businesses and public administration, which includes areas such as social security, employment and law, for example, PROZZORO (Babenko et al., 2022);
- consumer-to-administration (C2A): C2A e-commerce refers to transactions between consumers and government administration where consumers pay for services such as taxes and preparation of legal documents (Turchyn, 2021).

So, the e-commerce market is currently one of the fastest growing markets. The current changes taking place in the e-commerce market caused by the COVID-19 pandemic may ultimately affect the development of this market in the coming years (Cheba et al., 2021) in his work investigated the drivers of e-commerce, namely: access of potential consumers to the Internet and mobile communications, macroeconomic conditions and social aspects in the country, criteria describing

the e-commerce market in cities and evaluated the criteria that evaluate the impact of the development of the e-commerce market commerce in cities on the environment. Actually, e-commerce allows businesses to reach more customers than traditional trade, and this is related to a number of marketing factors.

Having studied the scientific publications of specialists on this issue, the following can be attributed to the advantages of e-commerce: Increased coverage: e-commerce allows small businesses to reach a wide range of consumers. This allows all sellers to be part of the global market. More jobs: As these small e-commerce businesses grow, they employ more people. Lower operating costs: With lower operating costs – such as no rent – small businesses have more room to spend their money on other aspects of the business and grow. Easier and more convenient shopping: One of the main benefits of e-commerce is that it allows customers to quickly find and get what they want to buy from the comfort of their homes (Turchyn, 2021). Enabling comparison shopping: consumers are also empowered by online shopping experience. They can easily research and compare products and companies (Saribut, 2022).

To raise the level of competition and grow the business faster, businesses need to use e-commerce tools in combination with effective marketing tools and a winning marketing strategy.
Key tools include:

- *E-commerce platform*. The e-commerce platform a business chooses will have a major impact on the success of its business. Many services have built-in tools to help you manage your store more efficiently, such as ready-made templates and services (Chenglin & Shanyue, 2022).
- *Email marketing*. An email marketing service will help businesses continue to build relationships with their audience even after they leave their website (Esmeli et al., 2022). This makes it possible to create an automated marketing sequence to inform customers about new products or upcoming sales.SEO. By focusing on search engine optimization (SEO), your business increases the likelihood that your site will appear at the top of Google's results. By optimizing your website for search, your business can increase organic traffic and find new customers (Khan et al., 2021).
- *Analytics*. All businesses should be able to track how visitors interact with their site. The right analytics tool can help identify problem areas and growth opportunities (Esmeli et al., 2022).
- *Communication through social media (SMM).* Being active in social networks is one of the best ways to promote a company's brand and interact with customers. But managing social media can be time-consuming, so companies will want to automate this task as much as possible (Saprikis & Avlogiaris, 2021).
- *Customer service.* It doesn't matter how many new customers a business gets if it can't satisfy its current customers. The right customer service tool will help you create a positive experience for your customers.
- *Automation.* Every business has dozens of everyday problems that can be automated or outsourced. The right automation tools will help a business run more efficiently and free up time for more complex projects (Khan et al., 2021).

At the same time, it is worth noting that with digitalization, European politicians continue their course to update the EU Legislation to the current digital reality. Thus, in the first half of 2022, the Law on Digital Services and the Law on Digital Markets were adopted. Given the growing importance of online marketplaces in the e-commerce ecosystem, these rules will have a significant impact on the sector, helping to reduce illegal content online and make the internet safer and more transparent, but there will still be implementation challenges. At the same time, the European Union is stepping up its efforts to make the economy more sustainable and has published numerous new legislative proposals covering all aspects of products and services sold on the EU market. These proposals cover a wide range of issues, from greening retail chains to improving the circularity of products. In addition, they also quantify the environmental impact of products and activities and how they are presented to European consumers
(E-commerce and Digitalization of Sales, 2021).

2. RESULTS

This study brings together the results of some important studies from the past five years (2018-2022) for practitioners and academics. So, in this study we will find the answer to the following two research questions:

1. What is the current state of development and growth of B2C e-commerce over the past five years and the use of modern marketing tools?
2. What are the new trends emerging in B2C e-commerce?

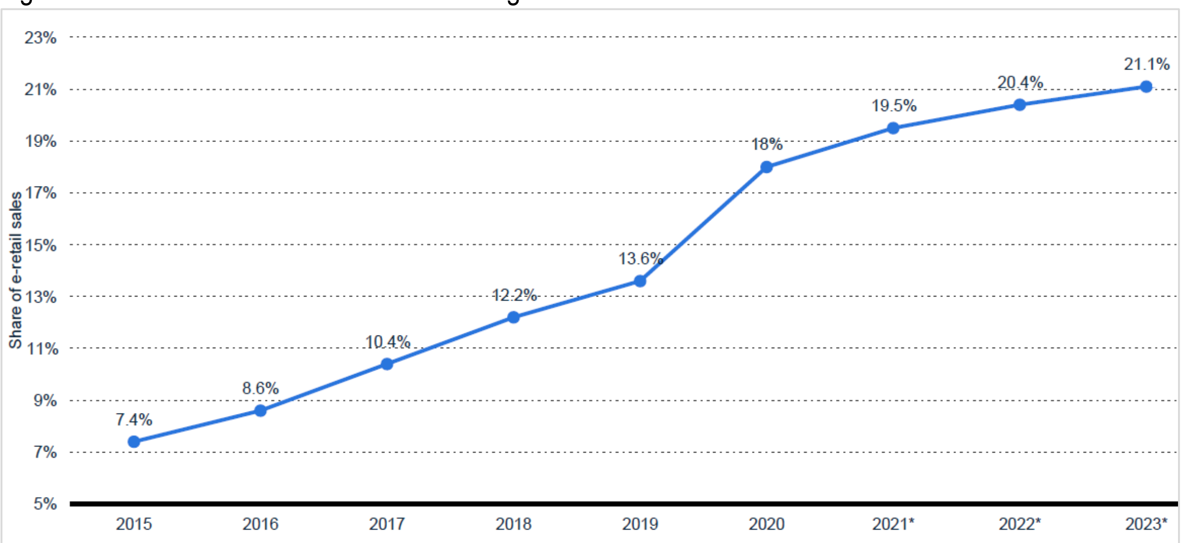
The study used a systematic review of literature making use of guidelines provided by Kitchenham (2004). The first data search was carried out with Google Scholar, Web of Science, Scopus. Based on the research objectives, research papers were searched online using keywords, e-commerce, digital marketing, marketing

tools, digitization, trade. An inclusion and exclusion criterion was decided. Only articles published in the scientific journal were searched. Both qualitative and quantitative studies were considered. The results were filtered using a date range of 2014-2022 and it included peer reviewed papers published in English.
The authors also used methods such as systematic analysis, comparative analysis, logical approach in the article and based their opinions on them. Data collection and analysis culminated in the definition of 10 trends that are gaining ground in contemporary e-commerce.

3. GROWTH OF B2C E-COMMERCE

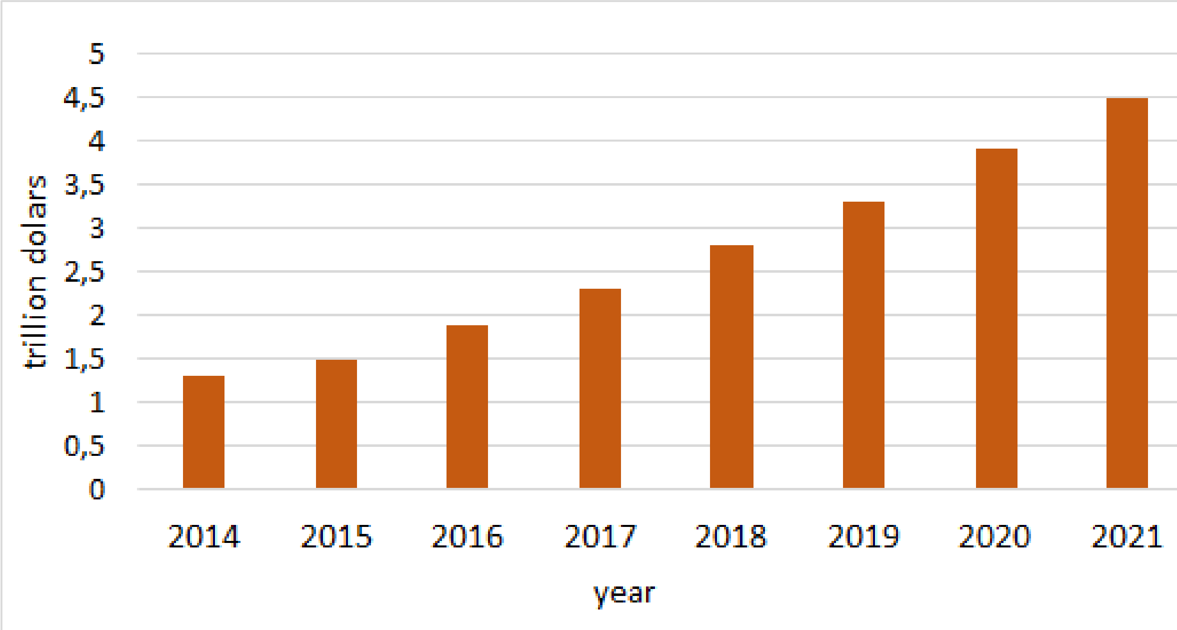
The Covid-19 pandemic has served as a catalyst for online sales as e-commerce has responded quickly to the challenges of the Covid pandemic, providing uninterrupted access to manufacturers and services for consumers (Watermeyer et al., 2021). E-commerce sales continued to grow in 2021, albeit at a slower pace due to the easing of restrictions due to Covid (Fig. 1). But consumers, many of whom had not previously made any online purchases, were convinced of the usefulness and convenience
of e-commerce. According to the research E-commerce and Digitalization of Sales (2021) is expected, online sales to account for an average of 30% of retail sales by 2030. Global sales of e-commerce and their growth are presented in Fig. 2.

Fig. 1: Worldwide e-commerce share of total global retail sales 2015-2023



Source: Statista (2021)

Fig 2: Global e-commerce sales 2014-2021 years



Source: E-commerce and Digitalization of Sales (2021)

Today, according to World Bank (2022) 59.9% of the world's population (4.7 billion people) used the Internet in 2020. According to the United Nations (cited in E-commerce and Digitalization of Sales, 2021), 4.1 billion people are connected to the Internet, and almost all of them (92.6%) do so using their mobile devices. Every day, 85% of users (3.5 billion people) connect to the Internet and spend an average of six and a half hours online.

More detailed information about the current situation in the EU can be seen in Table 1. As we can see from Tab. 1, the share of the population in the European Union that has access to the Internet and makes purchases online continues to grow.

Tab. 1: Internet use and B2C e-commerce in the European Union (EU-27 without the United Kingdom)

	2017	2018	2019	2020	2021
Internet use (percentage of individuals in EU-27)	84	85	87	89	90
Finding information about goods and services on the Internet (percentage of individuals in EU-27)	64	68	66	70	66
Internet use for Internet banking (percentage of individuals in EU-27)	49	51	55	58	58
Internet purchases by individuals, last online purchase in the 12 months (percentage of individuals in EU-27)	54	56	60	65	67
Enterprises' turnover from web sales - B2C (percentage of turover), all enterprises, without financial sector	2	2	2	3	3

Source: Eurostat (2022)

As the reported statistics show (European E-commerce Report, 2022), Western Europe remains the leader in terms of the share of B2C e-commerce turnover in Europe, constantly covering more than 60% of total turnover. In turn, Northern Europe lags behind in terms of the share of total European turnover, however, the e-commerce markets in these countries are strong and more than 4% of the total GDP can be attributed to e-commerce. As for Eastern Europe, the digital economy in these countries continues to grow, the region has many opportunities to compete with the markets of the West and of Southern Europe, as evidenced by the data from Tab. 2:

Tab. 2: B2C e-commerce by region in 2021 (%)

	Internet users by region 2021	E-shoppers by region 2021	Share of total European e-commerce turnover by region 2021
Western Europe	95	84	63
Northern Europe	97	86	9
Central Europe	90	75	10
Eastern Europe	75	46	2
Southern Europe	86	65	16

Source: European E-commersce Report (2022)

However, small and medium-sized businesses that sell online continue to lag behind in their use of digital tools. There was a public expectation that e-commerce would slow down significantly after the lifting of quarantine due to the Covid-19 pandemic, but in many countries, online shopping remained stable (Utomo et al. 2022). Hence, consumer behavior has completely changed as consumers expect to be able to use different combinations of online and offline interactions. Retailers will have no choice but to invest in making their offering seamless and affordable in both combinations.

E-commerce has increased competition and fragmentation of online offerings with the emergence of new models such as fast-paced commerce. However, physical stores will continue to play an important role, this role will be somewhat different and will be related to the offer of experience and expert advice. We note that both retail and wholesale trade are important pillars of the European economy, which is precisely why digitalization should become the main priority for the recovery of the economy as a whole (Sutinen et al., 2021).

Digital presence is becoming a matter of survival for many companies. Before the pandemic, 70% of retailers, especially micro businesses, did not have an e-commerce offering or an online presence. Supporting the digitization of small and medium-sized businesses will require special support, technical advice, and knowledge of various tools to facilitate such an online presence without having to invest in a complex operation (E-commerce and Digitalization of Sales, 2021).

4. NEW TRENDS IN B2C E-COMMERCE

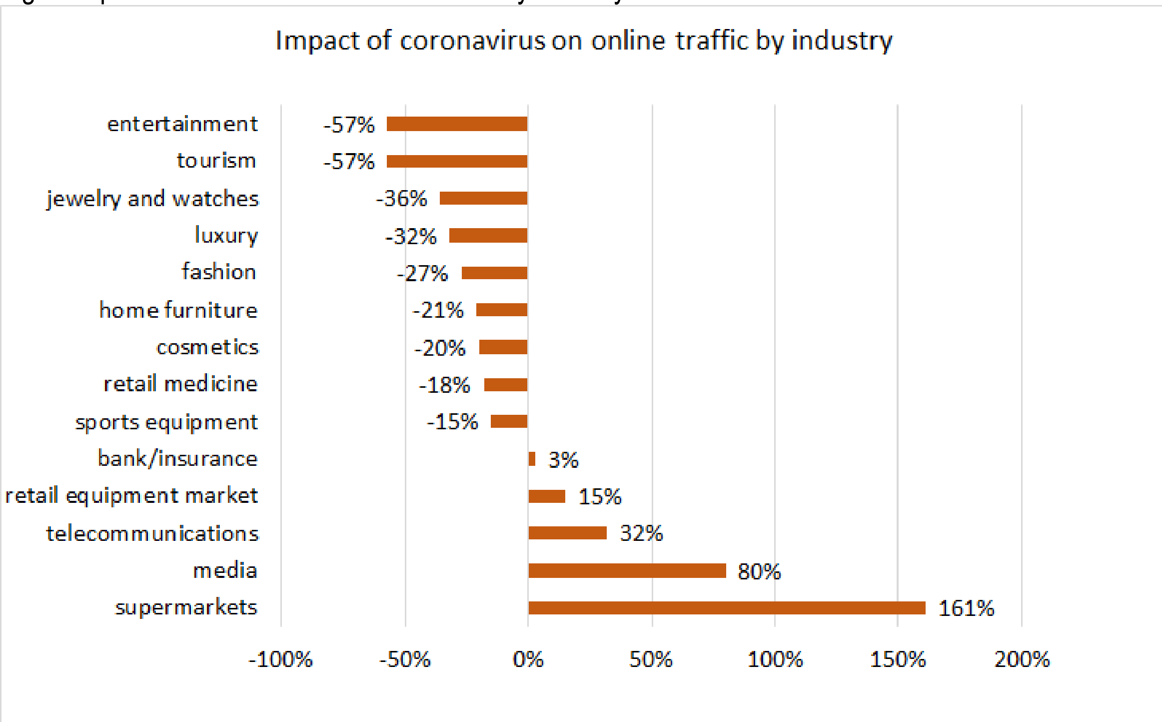
Having studied numerous publications of leading scientists in this direction of electronic commerce, we will single out 10 trends in B2C e-commerce:

1. The emergence of a large number of new e-commerce enterprises, after the COVID-19 pandemic. The coronavirus has already begun to change the appearance of the economy. For example, Figure 3 shows the impact of the coronavirus on online traffic by industry, and Figure 4 shows the impact of the coronavirus on transactions by industry (Turchyn, 2021). Brands that previously had a business model that was completely dependent on people coming into the store must now either grow or close. And growth in the age of ordering means e-commerce.

So, the coronavirus has given birth to new online businesses. Some of these will be an advanced version of the traditional offline business that existed before the pandemic, while others will grow completely in response to the new reality and the demands of the times.

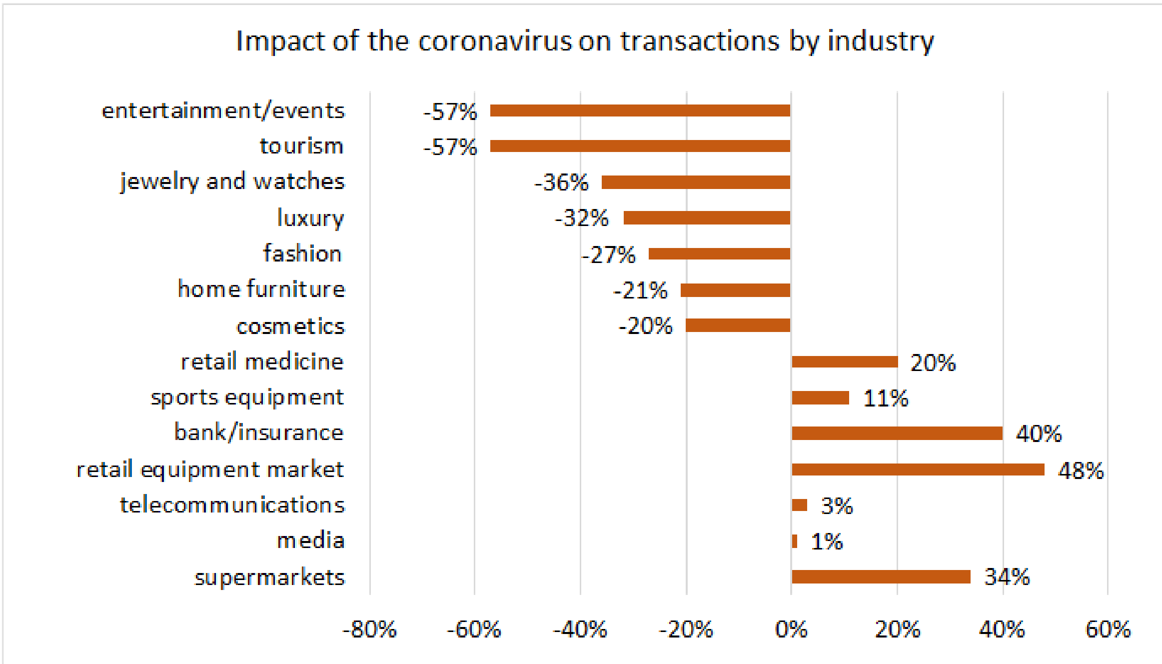
With the urgent need for development and change for modern enterprises, a kind of addition in the world is an unprecedented increase in unemployment (destroying the equivalent of 225 million full-time jobs) (E-commerce and Digitalization of Sales, 2021). These workers have an incentive to consider new career opportunities and a lot of free time. It's safe to say that at least some of them will take this as an opportunity to learn entrepreneurship and start an e-commerce business.

Fig 3: Impact of coronavirus on online traffic by industry



Source: Bellaiche (2020)

Fig 4: Impact of the coronavirus on transactions by industry



Source: Bellaiche (2020)

2. Services connected to the network during a pandemic will remain online, this is the next trend. Actually, certain types of services require offline presence, that is, personal meetings, for example, this applies to medical services, it is not possible to take someone's blood for tests without reaching a doctor. But both service providers and their consumers are now learning that many services can be effectively delivered through digital channels. There is nothing new in telemedicine, but people who, for various reasons, did not dare to try it before, have now tried how it works. Some of those who have done it have found that the digital version works perfectly and saves the consumer from many negative factors, for example sitting in traffic or parking. The same is true of other service-based businesses, such as coaching and IT consulting. It is also worth emphasizing that, despite this, there are still a number of consumers who prefer personal communication with the service providers they hire (Xiahou & Xarada, 2022).
3. Website builders will be the best design option for small E-Commerce businesses. Therefore, the development of E-Commerce and the emergence of new enterprises in this direction will be largely driven by people with little experience in programming or web design. In the past, this would have been a serious obstacle on the way to creating an online store, but since the beginning of 2020, this trend has changed a lot. These days, new website owners have many affordable (or even free) eCommerce website builders they can turn to to build their site, regardless of their skill level. Website builders provide templates designed by professionals that incorporate user experience best practices. New e-commerce entrepreneurs can change templates by turning off colors, uploading custom images, and moving elements around using the drag-and-drop feature. And within a very short period of time, you can have a functional self-tuning e-commerce website ready. In today's conditions, the opportunity to open an online store quickly and at an affordable price will be more attractive to most entrepreneurs than the implementation of a more complex web design project. In fact, this will mean that many online stores in the near future will be built using the popular website builders currently available, or perhaps new ones that may come on the market to meet the growing demand (Wang et al., 2019).
4. Internet sites will occupy a significant part of the e-commerce market. Obviously, online marketplaces are already a large sector of the e-commerce industry today. Sites like Amazon, Ebay and others give individuals and companies the opportunity to connect with audiences, create larger groups. Therefore, the customer has the opportunity to create an account in the relevant market or several markets by placing his products and selling them through a certain e-commerce platform. In addition, some e-commerce brands base their entire business model on finding buyers through popular marketplaces. Some will start with just that to test a product idea, then move on to building their own website once that kind of testing shows there is a market for their services. Some other entrepreneurs use a hybrid model, selling goods both through their own website and trading platforms (Turchyn, 2021).
5. Mobile shopping will become the norm for a large part of the population. An eMarketer study found that more than a third of all e-commerce sales occur via mobile devices (Dykha et al., 2021). This trend is far from new for businesses, however, mobile phones continue to play an important role in the future of e-commerce. The trend of mobile shopping leads to the fact that companies must take this into account when developing their overall marketing strategy and determine whether it makes sense to create a mobile application for their business. Which in turn can include investments in mobile channels such as SMS advertising (short message service, a more technical term for text messaging) or placing ads in mobile applications, which is actually about optimizing the site for mobile devices (Saprikis & Avlogiaris, 2021).
6. Consumer security concerns will change how e-commerce businesses use consumers' personal data. In the past few years, personalization and big data have been the trend and buzzwords in business, but there has been a slight backlash against this trend that has been growing (Huang, 2021). Consumer research shows that many of them do not like how much information is being shared about them, collect brands and how they are used in the future. There are laws on the protection of personal data in developed countries. However, it is worth emphasizing that many e-commerce businesses will continue to collect as much

customer data as possible, regardless of what consumers think. For some companies, this can be an opportunity. While some companies will unprofessionally and discreetly collect as much information as possible, at the same time, experienced e-commerce companies will see an opportunity to take a much more cautious and open approach to the collection and use of consumer data, thereby building relationships with consumers.

7. Eco-conscious consumers will drive the growth of eco-friendly e-commerce brands. According to GlobalWebIndex data ("10 retail trends to watch in 2023", 2022) half of the consumers are concerned about the impact of their shopping choices on the environment. If we consider the younger generation, these figures are even higher. We must note that consumers are ready to invest money in these values. The CGS Survey found that more than a third would be willing to spend 25% more on a greener product (Turchyn, 2021). Actually, in this case, "green" e-commerce should be considered an opportunity for entrepreneurs. For some e-commerce brands, switching to this concept may simply mean putting more thought into the type of packaging you use for your products. However, we are talking about building a business based on completely different principles. For example, businesses can create products from recycled materials or produce products that help customers get rid of more wasteful habits, such as reusable bags that replace plastic (Cano et al., 2022).

8. Customer service and providing consumers with "value" will become the main distinguishing features of the business. A business will always have consumers who are price-oriented when making a purchase, this principle is true for a large segment of the market over a long period of time and will take place in the future. But since e-commerce giants like Amazon and Walmart can offer lower prices than everyone else because of their size, smaller e-commerce brands that can't compete on price alongside the giants have to find other ways to stay in the market and strategies differentiation. Therefore, small businesses can focus on two things: personify something and create an amazing shopping experience for consumers. As the political world becomes more polarized, consumers care more about what brands stand for and want to be sure they are choosing companies that align with their personal values (Xiahou & Xarada, 2022). Accenture research has shown that:

- 63% of consumers prefer to buy from specialized brands;
- 65% want to know that the brand they buy from treats its employees well;
- 62% care that they are working to reduce the use of plastic and other non-sustainable materials;
- 74% value transparency in how products are sourced, how safe working conditions are, and what tests are conducted on animals.

Therefore, the company's philosophy, its mission and goals, which resonate with the opinion and preferences of the consumer, can bring good commercial results and pay off well. Another way to separate small brands from global leaders that can bring great results is to provide better customer service. Small e-commerce businesses can provide quality, personalized customer service that consumers remember and talk about, that delights them and builds brand loyalty. Therefore, customer retention is just as important for e-commerce brands as customer acquisition. A solid customer experience is one of the best ways to turn new customers into repeat customers (Cano et al., 2022).

9. AI-driven chatbots will take over marketing and customer service. Over the past few years, each of us has been observing an already common phenomenon, the so-called chat windows that appear at the bottom of business websites. In some cases, there is a person behind them who answers questions in real time, however, in the vast majority of cases, these are chatbots that issue answers based on artificial intelligence. So, AI chatbots bring many tangible benefits to e-commerce businesses: firstly, they can answer common visitor questions 24/7 (while customer service agents need sleep or shift work schedules); second, they can offer website visitors personalized product and content recommendations based on the visitors' interests; third, they can reduce the time that support representatives spend answering basic questions. So every interaction they have with visitors teaches them something about their audience, making future responses and the information they provide even more useful and optimized. Artificial intelligence chatbots are one of the e-commerce marketing tools. As the technology they work on evolves and becomes more affordable, more businesses are adopting them. Chatbots will take over some of the work done by marketing and customer service departments and provide useful information to website visitors at the moment they are looking for it (Go & Sundar, 2021).

10. Voice will become an integral part of the buyer's journey. Today, smart speakers are already a growing industry, and voice assistants are in all smartphone models, and voice search has become a regular part of life for many modern consumers. While this hasn't led to people making purchases solely by voice, it now means that people are doing a number of shopping-related activities this way. It's likely that as the smart speaker industry grows and evolves, brands will find ways to make shopping with one voice easier, and this will likely become more important in the online shopping algorithm. Those e-commerce brands that have not yet started to consider voice in their marketing strategies should definitely do so and take it into account. The sooner the company can address customers by voice, the better it will be able to adapt in the world of growth of this part of the market (Moriuchi, 2019).

CONCLUSION

As a result of the study of the leading scientific literature, statistical data, and conducted research, we come to understand that the Internet audience is constantly growing and makes regular purchases on the Internet. E-commerce has become a global phenomenon that is growing at a healthy rate in almost every country. And in the conditions of the pandemic, the global economy and the crisis situation, electronic commerce has become one of the most important components and a strong catalyst of economic development. At the same time, online marketing techniques such as search engine optimization (SEO), search engine marketing, analytics, automation, social media communication (SMM), e-commerce platform, email marketing, customer service, etc. are improving and evolving. Digital marketing extends to non-internet channels provided by digital media. Enterprises are offered to expand various types of digital activities, implement digital innovations and rethink interaction and communication with consumers. We predict the growth of a large number of new e-commerce enterprises, and the operation and development of new online services that arose during the coronavirus pandemic, the development of online sites, the growth of purchases via mobile phones, the growth of environmentally friendly e-commerce brands, the protection of personal data and privacy issues consumers, value orientation in e-commerce, use of artificial intelligence, chatbots and voice assistants. All these isolated trends, in turn, require further research and the search for relevant solutions for the development of electronic commerce and the generation of optimal solutions for the active use of advanced marketing and information technologies in the process of operation by modern enterprises.

This article also helps scientists to understand the main priority trends and directions for the further development of e-commerce as a modern paradigm for the formation and use of marketing tools in the context of digitalization.

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CONSPICUOUS CONSUMPTION IN SPORT - DO ATHLETES BEHAVE CONSPICUOUSLY?

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Abstract: Conspicuous consumption is constantly evolving due to the availability of goods and the technology development. People have many opportunities to express their values, beliefs, and personalities through product and price is no longer the main factors determining whether a product is suitable for conspicuous consumption. With the development of social networks such as Instagram, the influence of recommendations by influencers are gaining momentum. By consuming similar products (and brands) as those consumed by influencers, consumers seek to demonstrate their similarity to influencers and thus join a particular social group. The purpose of this study is to examine the relationship between influencer marketing and the perception of sports products as conspicuous and to specify the purchasing behavior for sportswear. Primary data were collected using an online questionnaire focusing on Generation Z (n = 240) and in-depth interviews (n = 10). The questionnaire was based on previous studies of conspicuousness and status consumption and included a set of 22 statements. Data were processed using a factorial analysis in which statements were grouped into several main factors. These factors were examined through regression analysis, with the explanatory variable being the tendency toward conspicuous consumption. Although, the quantitative data analysis did not reveal a tendency toward conspicuous consumption of sports products, the qualitative analysis supports this relationship.

Keywords: conspicuous consumption, social status, influencer marketing, sportswear

JEL Classification: M31, M37

INTRODUCTION

In today's society, it is easier than ever to consume ostentatiously. This is mainly due to the development of social media, which allows consumption and presentation in real-time (Bronner & de Hoog, 2019), allowing for greater visibility of consumption, which is an important aspect of conspicuous consumption (Heffetz, 2011). Since Veblen's (1899) conceptualization of conspicuous consumption as the luxury products consumption, other factors have been added to the price factor. Consumers also show their values and personality through their consumption (Solomon, 2018). Thus, conspicuous products are not only high-priced, but also allow consumers to express personality traits, lifestyles, and experiences that place them in a particular social group (Bronner & de Hoog, 2018; 2019; O'cass & McEwen, 2004; Yang & Mattila, 2016).

Brand can significantly influence consumer behavior, as it helps define values in the minds of consumers and determines a company's position in the market (Kardes et al., 2015). Almasi & Dadaneh (2017) have demonstrated that there is a relationship between brand personality and brand equity in sportswear. According to Cao (2014), sports brands in particular can express consumers' social values and symbolize freedom, life, and power, for example. Compared to everyday clothing, sportswear is characterized by several other attributes related to its purpose. For example, it meets specific consumer needs – in outdoor sports such as hiking, basic needs include warmth and dryness. Most sports are also about feeling comfortable and safe (Ağaç & Sakarya, 2014).

Generation Z is the generation born between 1995 and 2010 (Kamenidou et al., 2018; Kardes et al., 2015 Patsiaouras, 2010). At the same time, this generation has just started to enter the labor and consumer market and is beginning to shape their behavior. As mentioned earlier, the development of conspicuous consumption is closely linked to the development of social networks. Generation Z has grown up alongside social networks (such as Instagram and Facebook) and therefore has a strong tendency to engage in conspicuous behavior. They communicate the most on various social networks while building strong relationships with their surroundings (Solomon, 2018; Yussof et al., 2018). It is also where they get inspiration and information about new trends and styles. Their role models include celebrities as well as internet stars who have become famous through their work in social media – influencers (Gundová & Cvoligová, 2019; Solomon, 2018).

Influencer marketing is a form of advertisement of products and companies that have become an essential part of online marketing in recent years as a modern and popular form of promotion (Ozuem & Willis, 2022). Influencers ‘popularity is affected not only by the quantity or quality of their posts but also by their authenticity and personality (Casaló et al., 2020). Influencer marketing is also a very effective form of marketing. Gundová & Cvoligová (2019) confirmed in their research that almost 70% of respondents have bought products based on an influencer's recommendation in the past.

This research aims to investigate the tendency of athletes and sportsmen or sportswomen to be conspicuous in their sportswear purchasing behavior in relation to their Instagram use and their influenceability of influencer marketing (Ozuem & Willis, 2022; Gundová & Cvoligová, 2019; Solomon, 2018).

1. MATERIAL AND METHODS

In-depth interviews were conducted with 10 Generation Z respondents who use Instagram and play sports. This part of the research was an introduction to the conspicuous consumer behavior of athletes and their behavior on Instagram. Based on the results the questionnaire for the quantitative research, which was created based on the literature review, was modified. The characteristics of the respondents are shown in Table 1.

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Tab. 1: In-depth interview sample.

Respondent	Gender	Age	Sports Activity	Instagram Use
1	Man	22	Hockey	Daily
2	Woman	21	Gym	Daily
3	Woman	24	Swimming	Daily
4	Woman	22	Nothing regular	Daily
5	Man	20	Athletics	Daily
6	Man	23	Athletics	Daily
7	Woman	20	Athletics	Daily
8	Woman	20	Athletics	Daily
9	Woman	22	Athletics	Daily
10	Man	22	Soccer, gym	Daily

Source: Own data

A questionnaire in quantitative research contained 25 statements that focused on conspicuous and status-related consumption of sports goods based on previous studies (Chaudhuri & Majumdar, 2006; Assimos et al., 2019; Riquelme et al., 2011; Mai & Tambyah, 2011). These statements were adapted to the topic of sports goods consumption. In addition, influencer marketing questions were also included in the questionnaire. All statements in the questionnaire were arranged on Likert scale with values from 1 to 7, where 1 meaning absolute disagreement with the statement and 7 representing absolute agreement with the statement. A summary of the statements and the statistical values of the individual statements in the questionnaire survey can be found in Table 2.

Tab. 2: Statements in the questionnaire.

Variable (statements)	Mean	Median	Modus	Mode Freq.	St. Dev.
Sportswear quality is important to me.	5,76	6	7	86	1,27
Sportswear brand is important to me.	3,7	4	4	60	1,67
Sportswear made of eco-friendly material is important for me.	2,72	3	2	59	1,44
I buy branded, high quality and more expensive sportswear.	4,69	5	5	54	1,64
I prefer a particular brand of sportswear and footwear.	4,94	5	6	66	1,82
I enjoy buying branded sportswear.	5,24	6	7	73	1,71
I am attracted to branded and quality sports products.	5,17	6	6	62	1,69
The clothes I mostly wear indicate a lot about how well I'm doing in life.	2,9	3	1	59	1,55
When I choose a sports brand, I often consult my family and friends.	3,06	3	1	56	1,71
I usually buy a sportswear brand that I think others will approve.	2,56	2	1	92	1,67
When I make a branded sportswear purchase, I share it on Instagram with my followers.	1,41	1	1	191	1,05

When I buy the same brand as the people around me, I feel like I belong to the same group.	2,24	2	1	109	1,57
The branded sportswear I purchase helps me make a good impression on those around me.	3	3	1	72	1,77
Purchasing branded sportswear gives me social recognition.	2,31	2	1	105	1,56
I like to buy branded sportswear and footwear because I want to be socially recognized.	2,02	1	1	134	1,49
I like to buy branded sportswear and footwear to make a good impression.	2,55	2	1	97	1,73
I adapt my behavior to the social group I belong to.	3,82	4	5	52	1,93
Buying branded sportswear gives me a symbol of social status.	2,28	2	1	106	1,47
Buying branded sportswear gives me prestige and importance.	2,26	2	1	109	1,53
I notice brands more when the influencer directly uses.	3,47	3	1	54	1,91
I have been inspired by a sports brand that influencers mentioned on their Instagram account.	3,55	4	1	58	1,93
I can associate influencers with a specific sports brand because they promote it on their Instagram account.	3,61	4	1	64	2,13
I assume the influencers have experience with the product or brand being promoted.	4,71	5	Multiple	52	1,94
I trust influencers so much that I would purchase the sports product brand they mentioned on their Instagram account.	3,32	3	1	66	1,93
The opinion of an influencer is more trustworthy to me than that of a salesperson in a store.	2,87	3	1	79	1,74

Source: Own data

A total of 240 respondents participated in the survey. Respondents were interviewed electronically and data collection has been proceed during March and April 2022. Generation Z respondents in the questionnaire were asked in the age categories 15-20 and 21-25. Although, Generation Z includes even younger population, only respondents who are legally able to earn their own income and participate in the labor market (15+ years) were deliberately addressed. The composition of respondents is shown in the Table 3.

Tab. 3: Sample of respondents from the questionnaire (n = 240).

		Absolute Frequency	Relative Frequency (%)
Gender	Women	129	53,75
	Men	111	46,25
Age	15-20	105	43,75
	21-25	135	56,25

Source: Own data

Factor and regression analyzes were used to evaluate the data. The aim of the factor analysis was to form factors from the battery of statements used in the questionnaire. These factors were then examined for their association with conspicuous consumption using regression analysis. The statistical programs Statistica and Gretl were used for these analyzes.

2. RESULTS

The respondents of the quantitative and qualitative research were mostly people who exercise regularly. The majority of respondents use Instagram daily (71%), using it mainly as a source of entertainment and relaxation, communication, and as a source of information, ideas, and inspiration. More than 80% of respondents said that they follow influencers related to sports. The qualitative research showed that respondents trust professional sports influencers more than amateur sports influencers who promote a brand. They often consider these collaborations as financially motivated and do not trust them. Conversely, they describe collaborations with professional athletes as more trustworthy and some would buy a brand based on a recommendation. The data from the quantitative study shows that up to half of the respondents are inspired by a brand they have seen on the influencer's Instagram Feed.

Although, respondents confirm the popularity of Instagram and the impact of influencers on their purchase behavior, respondents tend to reject the purchase of sports goods for the purpose of self-promotion and to increase their social status. When choosing sportswear, they primarily value the quality of the product, but brand and brand experience also play a role. The values of the statements on materialism and ostentation consumption show that consumers do not tend to engage in ostentatious consumption (the mean value for the statement "I like to buy branded sportswear and footwear to make a good impression and impress others", which directly targets conspicuous consumption, was 2,55 and modus of 1). However, qualitative research suggests that, after reflecting on the issue for some time, respondents are willing to admit tendencies towards conspicuous consumption in their consumption behavior (for instance "Sometimes I buy a brand cloth just to fit in").

Subsequently, the statements defining conspicuous consumption were removed (for further use in regression analysis) and the remaining 23 statements were subjected to factor analysis. Each statement was arranged into one of the 5 factors, see Table 4.

Tab. 4: Results of the factor analysis.

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
With sportswear, quality is important to me.	-0,326714	0,634836	0,009660	0,107049	0,176580
When it comes to sportswear, the brand is important to me.	0,341592	0,733355	0,067232	-0,152962	-0,028212
With sportswear, it is important to me if it is made of eco-friendly material.	0,047111	0,039014	-0,019142	-0,774525	0,106313
I buy branded, high quality and more expensive sportswear.	0,040994	0,792709	-0,020813	-0,031046	0,164019
I prefer a particular brand of sportswear and footwear.	0,012985	0,773514	0,100490	-0,047450	0,065295
I enjoy buying branded sportswear.	0,292468	0,702869	0,274476	-0,011340	-0,141575
I am attracted to branded and quality sports products.	0,277060	0,762746	0,183879	0,174810	-0,025660
The things I wear a lot say a lot about how well I'm doing in life.	0,621883	0,236999	0,106027	-0,117742	0,104982
When I choose a sports brand, I often consult my surroundings.	0,168860	0,085216	0,132339	-0,022112	0,808092
I usually buy a sportswear brand that I think others (my friends,	0,600921	0,050788	0,057792	0,012974	0,477397

acquaintances, neighborhood) will approve of.					
When I make a branded sportswear purchase, I share it on Instagram with my followers.	0,521328	-0,114665	0,038152	-0,313327	0,440569
When I buy the same brand as the people around me, I feel like I belong to the same group.	0,716884	-0,055886	0,137757	-0,124700	0,199761
The branded sportswear I purchase helps me make a good impression on those around me.	0,800321	0,250584	0,144785	0,106414	0,016996
Buying branded sportswear gives me social recognition.	0,833673	0,086389	0,027996	0,008173	0,017942
I like to buy branded sportswear and shoes to make a good impression.	0,809464	0,182889	0,129494	0,104610	0,056925
I adapt my behavior to the social group I am in.	0,411288	0,030542	0,020011	0,600578	0,128544
Buying branded sportswear gives me prestige and importance.	0,832241	0,082487	0,081353	0,016690	0,062365
I notice more brands that the influencer directly uses actively (goes running, working out, ...).	0,060666	0,181515	0,623252	0,062870	0,375274
I've been inspired by a sports brand that an influencer mentioned on their Instagram account.	0,023147	0,204846	0,728080	0,019837	0,260146
I can associate influencers with a specific sports brand because they promote it on their Instagram account.	0,174218	0,169140	0,741213	0,119287	0,085901
I assume the influencer has experience with the product or brand being promoted.	-0,023415	0,064901	0,778647	0,126342	-0,075024
I trust some influencers so much that I would purchase the sports product brand they mentioned on their Instagram account because of their promotion.	0,165828	0,013981	0,791316	-0,110215	0,030617
The opinion of an influencer is more trustworthy to me than that of a salesperson in a store.	0,262820	0,001245	0,648837	-0,286049	-0,145647

Source: Own data

The individual factors from the factor analysis were named:

1. brand quality – characterized by perceived quality and brand experience,
2. social recognition and perception by society– the need for social recognition and prestige,

3. inspiration by influencers – the impact of the presentation of products by influencers,
4. society and sustainability –the adaptive behavior in different social groups and the tendency toward ecological behavior,
5. recommendations from the community – the influence of the closer surroundings.

These factors were then used as explanatory variables in the regression analysis. "I like to buy branded sportswear and shoes to impress the people around me and make a good impression." was chosen as the explained variable.

Tab. 5 Regression analysis

Model 2: OLS using observations 1-240 Dependent variable: Impressing people and making impression					
	coefficient	**std. error**	**t-ratio**	**p-value**	
const	2,02083	0,0485359	41,64	1,03e-110	***
brand quality	1,28295	0,0486373	26,38	2,52e-072	***
social recognition and perception by society	0,134424	0,0486373	2,764	0,0062	***
Inspiration by influencers	0,0859430	0,0486373	1,767	0,0785	*
Mean dependent var.	2,020833		S. D. dependent var.	1,493215	
Sum squared resid.	133,4288		S. E. of regression	0,751915	
R-squared	0,749616		Adjusted R-squared	0,746433	

Source: Own data

As seen in the regression model (Table 5), the conspicuous behavior of sportswear consumers is influenced by factors brand quality, social recognition and perception by society, and inspiration by influencers. The main influence have the factors brand quality and social perceptions by society, which are also statistically most significant. The importance of these factor in sportswear shopping behavior is confirmed also in qualitative research, therefore it's not a surprise, it plays a role also for conspicuous consumption. Also the factor social recognition and perception by society was assumed, given that in this research social networks are taken as a prerequisite for the development of conspicuous consumption.

CONCLUSION

This study proves the impact of influencer marketing on Generation Z in general, 95% of respondents were Instagram users and 80% of respondents follow an influencer related to sports. Even though consumers mainly consider quality and brand when buying sportswear, this study proved that influencer marketing is a source of inspiration and information.

One of the objectives of this study was to examine the relationship between influencer marketing and the perception of sports products as conspicuous. In the quantitative study, this relationship could not be proven as the respondents mostly denied the intention to buy sportswear for conspicuous purposes. However, in the qualitative research, respondents admitted that they tend to buy products to demonstrate their social status and to fit into a certain social group. This type of conspicuous behavior, according to the analysis, is most influenced by brand quality as well as by social recognition and perception by society.

As suggested by Ozuem & Willis (2022) and Gundová & Cvoligová (2019), this study confirmed influencer marketing as an effective and attractive way of advertising for younger generations. It also confirmed the importance of brand in consumer product choice (Kardes et al., 2015).

The limitation of this study is the reluctance to admit the conspicuous behavior intentions in such a short questionnaire. This suggests that a qualitative study is a better way to investigate conspicuous consumption, thanks to a deeper connection with the respondents.

This research is a preliminary research, therefore its purpose was to test the statements for further research on conspicuous consumption.

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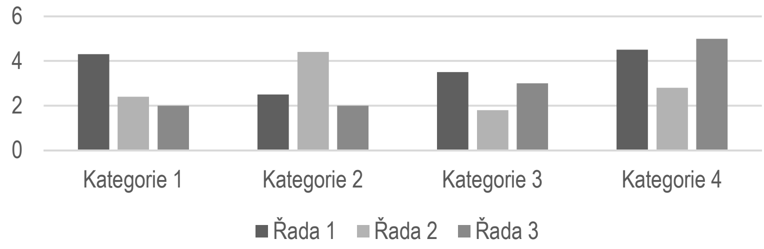

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