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THE IMPORTANCE OF INNOVATION IN THE CZECH AND SLOVAK SPA INDUSTRY: THE COVID-19 ERA AND BEYOND

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Znaczenie innowacji w przemyśle spa w Czechach i na Słowacji: Era COVID-19 i później

Streszczenie

Celem niniejszego badania jest analiza zakresu, struktury i odczuwanych korzyści innowacji wdrożonych przez przedsiębiorstwa uzdrowiskowe w Czechach i na Słowacji w okresie obejmującym fazę przed COVID-19, pandemię i po pandemii (2018–2022). Podstawą badania były ankiety, w których udział wzięły placówki spa, w tym właściciele spa, dyrektorzy generalni, kierownicy finansowi, kierownicy ds. marketingu, kierownicy ds. innowacji/rozwoju i kierownicy ds. relacji z klientami. W wynikach pokazujemy rozwój czterech typów innowacji poprzez porównanie między Czechami i Słowacją. Dynamiczne zmiany w zakresie innowacji można było zauważyć zwłaszcza w roku wybuchu epidemii COVID-19 lub w fazie po pandemii. Szczególnie znaczący spadek zaobserwowano w zakresie innowacji produktowych. Z kolei innowacje organizacyjne wzrosły podczas wybuchu epidemii COVID-19, a innowacje marketingowe odnotowały znaczny wzrost po wybuchu epidemii COVID-19. Również innowacje na Słowacji wydają się być bardziej dynamiczne niż w Czechach. Głównymi przeszkodami we wprowadzaniu innowacji w zakładach uzdrowiskowych są bariery finansowe i ekonomiczne, jednak nie wszystkie zakłady korzystają z możliwości dotacji. Choć innowacje w zakładach uzdrowiskowych wiążą się z wyższymi kosztami i, o dziwo, nawet nie zwiększają wydajności pracy, to w rezultacie przynoszą wyższą jakość usług i wyższe dochody.

Słowa kluczowe: innowacje marketingowe, innowacje organizacyjne, innowacje produktowe, innowacje technologiczne, turystyka uzdrowiskowa.

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Abstract

This study aims to analyze the scope, structure, and perceived benefits of innovations implemented by spa businesses in the Czech Republic and the Slovak Republic over a period spanning the pre-COVID-19, pandemic, and post-pandemic phases (2018–2022). The basis of the study was a questionnaire survey, in which spa establishments were approached, including spa owners, general directors, financial managers, marketing managers, innovation/development managers, and customer relations managers. In the results, we show the development of four types of innovation with a cross-country comparison between the Czech Republic and the Slovak Republic. Dynamic innovation changes could be noted in the year of the outbreak of COVID-19 or in the post-pandemic phases. A significant drop in product innovations was observed. Conversely, organizational innovations increased during the COVID-19 outbreak, while marketing innovations experienced a significant increase after the COVID-19 outbreak. Innovations in the Slovak Republic appear to be more dynamic than in the Czech Republic. The obstacles to the introduction of innovations in spa establishments are financial and economic barriers, but not all establishments use the possibility of subsidies. Although innovations in spa establishments mean higher costs and, surprisingly, do not increase labor productivity, they bring a higher service quality and higher incomes.

Keywords: marketing innovations, organizational innovations, product innovations, technological innovations, spa tourism.

Introduction

The spa industry forms an important part of the health system of many European countries. It is a healthcare field based on the scientific knowledge of balneology and other medical fields. The spa industry also includes spa tourism, which is part of the broader wellness tourism (Šenková, 2021). The spa treatment is based on four natural healing sources, namely healing waters, peloids, climate, and gases. Treatment methods have evolved over many centuries, and some of them are still used today. For example, in the German spa industry, there are the Kneipp, Felke, and Schroth methods. The tradition of hydrotherapy, of which Vincenz Priessnitz is the world-renowned founder, is maintained in the Czech spa industry. Although these methods are applied with regard to the latest scientific findings and are still considered effective, one must perceive the stormy development of modern medicine, which can treat a number of diseases faster, more efficiently, and oftentimes cheaper than classical spa treatments. However, in addition to their health function, spas also have considerable economic, environmental, socio-cultural, and regional importance (Attl, 2014). Many authors discuss the health benefits of spas, for example, Jakubíková, Vildová, Janeček, and Tlučhoř (2019), Fernandez-Gonzales, Fernandez--Lao, Martin, Gonzalez-Santos, Lopez-Garzon, Ortiz-Comino, and Lozano-Lozano (2021), Clark-Kennedy, Kennedy, Cohen, and Conduit (2021) and others. Among the basic macroeconomic indicators that are monitored when evaluating the economic benefits of spas and spa tourism, we can include the share of tourism

in the gross domestic product (GDP), its share in the balance of payments, and its impact on employment (Jakubíková, Vildová, Janeček, and Tlučhoř, 2019). Generally speaking, the share of the spa industry in the macroeconomic indicators of the Czech Republic and the Slovak Republic is low. In addition to the positive economic effects of tourism, some authors also describe its negative effects. The most recent research highlights the particularly negative effect of climate change (Szromek and Polok, 2022). Among the most well-known negative economic effects are ancillary costs, economic leakages, economic dependence on tourism, the creation of tourist enclaves (ghettos), tourist inflation, infrastructure costs, the negative character of employment and seasonality.

Spas are also an important form of tourism, which is supported in terms of marketing by destination management organizations both in the Czech Republic and in the Slovak Republic (Jakubíková, Vildová, Janeček, and Tlučhoř, 2019; Derco, 2020). In both countries, spas are considered a key tourism product. Spa support is not only provided in the form of marketing support but also as investment, financial, and legislative support.

Spas in the Czech Republic and the Slovak Republic have undergone a stormy development in recent years. The COVID-19 pandemic, which affected the entire European spa industry, had an absolutely fundamental impact. This issue has been addressed by a number of authors in the Czech Republic (Attl and Pátek, 2021), in the Slovak Republic (Šenková, Košíková, Matušíková, Šambronská, Kravčáková Vozárová, and Kotulič, 2021), in Europe (Marco-Lajara, Ruiz-Fernández, Seva-Larrosa, and Sánchez-García, 2019; Pinos Navarrete and Shaw, 2021), and in the world (Choudhary and Qadir, 2021). In Czech and Slovak spas, the coronavirus pandemic led to a substantial decrease in spa attendance and a change in the structure of guests (Attl and Pátek, 2021). After many years, locals prevailed over foreigners in Czech spas, and self-payers quickly began to replace patients of health insurance companies. The Czech Republic's economic problems have been at least partially addressed by state authorities, with the most significant support being the introduction of so-called spa vouchers. As soon as the worst period of the coronavirus pandemic ended in 2021, other negative phenomena occurred in 2022, which were reflected in the Czech and Slovak spa industry. The international political situation associated with the refugee crisis significantly worsened. This was gradually followed by the energy crisis and the associated economic and financial crisis.

Spa establishments had to react quickly to this situation, as they were threatened not only with the loss of competitiveness but often even with the loss of their very existence. Increased innovation activity was one of the main ways to counter the negative impacts. This was also the case for spa establishments in the Czech and Slovak Republics. Our study is also based on this situation. It aims to analyze the scope, structure, and perceived benefits of innova-

tions implemented by spa businesses in the Czech Republic and the Slovak Republic over a period spanning the pre-COVID-19, pandemic, and post-pandemic phases (2018–2022). The subject of the research is the application of innovations in individual spa locations and spa establishments, both in the operational area, which includes management and organization of work and the application of new technologies and techniques, as well as in the area of product offer and marketing communication.

Literature review

Innovation

The definition of the term innovation is different and unambiguous for different authors, and there is no definition of this term accepted by all. The first to create the economic concept of innovation was the Austrian economist Schumpeter, a native of Třešť in Vysočina. Schumpeter (1987) described innovation as one of five possible changes. This is the presentation of new goods - completely new or of better quality for customers; the introduction of a new production method, which does not mean only a new technology, but a new way of dealing with commodities and their commercial use; opening up to a new market, which does not mean only a new and currently non-existent market, but also existing markets that companies have not yet discovered and entered; acquiring a new source of supply with material or semi-finished products. From the word base coming from Latin (lat. *innovare* = to renew), it is clear that innovation represents some kind of change, renewal, or novelty. Although the original definition of innovation can still be considered valid, new fields emerging today are trying to conceptualize it, for example, in the field of digital phenomena (Hund, Wagner, Beimborn, and Weitzel, 2021).

Innovation can be a source of competitive advantage for establishments, either through improving methods and techniques capable of generating new products and services or by improving existing ones (Taques, López, Basso and Areal, 2021). In order to understand innovations, their comprehensive perception is important. As Kahn (2018) points out, innovation is three different things: innovation is an outcome, innovation is a process, and innovation is a way of thinking. According to Keller and Bieger (2005, p. 190), "innovation cannot be considered only as a creative force in the market to be reckoned with, but also as an available entrepreneurial resource, keeping in mind the spatial dimension of the destination."

According to Valenta (2001), the general characteristics of innovation are summarized in the following six points - innovation is a deliberate and beneficial

change of the current state; the change must find practical application and must be new (at least in the establishment); the subject of changes are products, services, production processes; the result of implemented changes must be of technical, economic or societal benefit; innovations become the bearer of technical development if they bring an economic effect; and innovations require certain technical, market, economic and psychological knowledge and skills of workers. For about twenty years, the concept of open innovation has been developing in the world (Bigliardi, Ferraro, Filippelli, and Galati, 2021; Szromek, Kruczek, Walas, and Polok, 2023). Open innovation is such innovation where the customers and end users themselves actively participate in the innovation of the product or service. They are the ones who share their ideas for product innovation with the company in order to solve their problems or wishes. This leads to a situation where external and internal ideas are combined to create innovations, or internal and external solutions capable of reaching a new market. This concept could be interesting and promising for the spa industry as well. The concept of open innovation has made it possible to achieve and implement innovations even for those establishments for which they were previously unattainable for various reasons (Szromek, Kruczek, Walas, and Polok, 2023).

The starting point for the formulation of the Innovation Strategy of the Czech Republic (2019) was the definition of innovation as understood by the European Commission: Innovation is the renewal and expansion of the range of products and services and their associated markets; the creation of new methods of production, supply, and distribution; the introduction of management changes; organization of work, working conditions and qualifications of the workforce.

Just as the definition of the concept of innovation is differentiated, the division of innovations into individual groups is also very diverse. The simplest division of innovations is probably contained in the Oslo Manual (OECD, 2018), where innovations are classified into two groups, technical and non-technical innovations. Gault (2018) presents the division of innovations in services and the public sector into six basic groups, which are 1. service innovations, 2. service delivery innovation, 3. administrative or organizational innovation, 4. conceptual innovation, 5. policy innovation, 6. system innovation. Dieffenbacher, Hüttinger, Zaninelli, Lines, and Rein (2009) use a model for breaking down innovations based on a matrix in which they are measured on the horizontal axis of technology (existing and new) and on the vertical axis of the market (again as existing and new). Based on this, they divide innovations into four groups: 1. architectural innovations, 2. radical innovation, 3. incremental innovation, and 4. disruptive innovations.

Valenta (2001) created a hierarchy of innovations in which innovations are divided into four phases (the first without a name, the second = rationalization,

the third qualitative = innovation, the fourth = technological revolution) and 11 orders. Another criterion for segmentation is their division into indicators that directly or indirectly affect the success of investments (Dziallas and Blind, 2019). Patents and the research and development budget are considered as examples of indicators that indirectly evaluate innovation. Indicators such as the number of new ideas, the percentage of ideas with potential for commercialization, or the number of products sold are then ranked as direct indicators (Dewangan and Godse, 2014). For the purposes of the study, we were based on the division of innovations into technological, product, marketing, and operational.

Innovation in tourism and spa

One of the specific areas in which innovations are currently being applied very quickly is the tourism sector and the hotel industry. A common feature of innovation in the tourism sector is the understanding of innovation as certain changes related to renewal, improvement, transition to a new state, implementation of new ideas, and introduction of new solutions to a certain problem (Gúčik, 2012). Bilgihan and Nejad (2015, p. 46) state that "innovative technologies and business models have revolutionized the hospitality and tourism industry."

The spa industry is characterized by the existence of a so-called natural monopoly, which consists of the exploitation of site-specific natural resources. These represent the spa's primary competitive advantage. Since ancient times, water has been the gold of modern times, and therefore, the use of thermal water is a logical step in the spa industry (Rodek, Máhr, and Birkner, 2020). Smith, Jancsik, and Puczko (2020) based their study on the level of spa services in post-socialist countries on the fact that innovation is a necessary means to increase competitiveness and improve service quality and customer experience and satisfaction. These innovations mainly include infrastructure development, modernization, and regeneration of spa establishments (Zizlavský and Fisher, 2021).

However, even the existence of a natural monopoly does not mean that spas can do without innovation. On the contrary, the innovation process is a natural part of the development of spa establishments, and this process has been accelerated and intensified by external conditions (Hjalager, 2010; Hjalager, 2015). Innovation in the spa industry is a less frequent topic in scientific papers, and we can distinguish two basic approaches to their investigation. The first is the medical field, which focuses primarily on the development of innovations in treatment methods and procedures, as well as the use of new technologies and treatment processes. The second approach is based on the understanding of the spa industry as a form of tourism (Sipe, 2018). From this perspective, the research is mainly focused on innovations in the product offer of spa tourism and innovations in marketing communication. Important in the context of marketing inno-

vations is the integration of spas into spa destinations and cooperation with destination management organizations (Panasiuk, Panfiluk, and Szymańska, 2016).

Another application of innovations in the spa industry can be considered the introduction of completely new spa destinations, such as Malaysia, targeting mainly Muslim clientele with the concept of a "Muslim-friendly spa" (Azman, Kamarudin, and Ali, 2025). In terms of target segments, the focus may extend beyond non-traditional clientele to also include the application of innovative approaches for traditional clientele. For instance, Patterson and Balderas-Cejudo (2022) emphasize the growing interest in spa and wellness tourism among the Baby Boomer generation, not only because of the treatment procedures but especially due to the social and psychological aspects, including the induction of positive emotions during socialization.

The current innovation activities are based on basic strategic documents focused on innovation. In the Czech Republic, this is the Innovation Strategy of the Czech Republic 2019-2030 (2019), while in the Slovak Republic, the basic strategic document is the National research, development, and innovation strategy. Innovation trends are also part of the strategic documents of the tourism sector. In the Czech Republic, this is the Tourism development strategy of the Czech Republic 2021-2030 (2021), while in the Slovak Republic, a similar document is still under preparation. The importance of innovation for the spa industry is evidenced at the European level by the Innovation Award, which is awarded annually by the European Spa Association (ESPA) in eight categories. Spa companies from the Czech Republic are among the winners.

Methods

The CAWI online survey method was used for data collection. Using a questionnaire survey, primary data was obtained in the field. Part of the questionnaire investigation was the so-called pre-research, during which the appropriateness of the compiled semi-structured questionnaire was verified. As part of preliminary research, three spa establishments in the Czech Republic and three spa establishments in the Slovak Republic were approached. Part of the pre-research was a guided interview held in the Třeboň spa, which was used to verify the comprehensibility of the questionnaire.

The selection set consists of all spa establishments in the Czech Republic and the Slovak Republic.[1] Among the respondents, two groups predominated,

[1] Although some studies point to a looser use of the term “spa” (Mihók and Marčeková, 2022), it is important to mention that our study only deals with spa as a narrowly defined part of wellness (which is in line with the approach of Šenková, 2021). Places that can bear the spa designation in the Czech Republic are precisely limited by Act No. 164/2001 Coll., according to which the presence of a natural healing source and medical personnel is a necessary condition.

namely medium-sized enterprises (fewer than 250 but more than 50 employees), of which there were 22 (48.88%), and small enterprises (fewer than 50 but more than 10 employees), which counted 20 (44.44%). Specifically, there are 92 spa establishments[2] in the Czech Republic, which are located in 35 spa locations[3] (Table 1 with n_t for total and n_r for relative counts of spa establishments; n = 92). In most spa locations, there is only one spa establishment. Most of the establishments are located in Karlovy Vary (27), Františkovy Lázně (18) and in Mariánské Lázně (8). The sample includes establishments with different forms of ownership - predominantly commercial companies (limited liability companies or joint stock companies), but there are also establishments operated by state institutions. Some commercial companies are municipally owned (Třeboň, Hodonín). The database of spa establishments and spa sites is taken from the Czech Inspectorate of Spas and Spa Facilities (ČIL).

Table 1
Spa places and number of spa establishments in the Czech Republic

Spa location	n_t	n_r (n = 92)	Spa location	n_t	n_r (n = 92)
Bechyně	1	1.09%	Lázně Kynžvart	1	1.09%
Bludov	1	1.09%	Lázně Libverda	1	1.09%
Buchlovice	1	1.09%	Lednice	2	2.17%
Františkovy Lázně	18	19.57%	Lipová-lázně	1	1.09%
Hodonín	1	1.09%	Luhačovice	4	4.35%
Jáchymov	1	1.09%	Mariánské Lázně	8	8.70%
Janské Lázně	1	1.09%	Mšené-lázně	1	1.09%
Jeseník	1	1.09%	Ostrožská Nová Ves	1	1.09%
Karlova Studánka	1	1.09%	Poděbrady	3	3.26%
Karlovy Vary	27	29.35%	Slatinice	1	1.09%
Karviná-Darkov	1	1.09%	Teplice n. Bečvou	1	1.09%
Klášterec nad Ohří	1	1.09%	Teplice	2	2.17%
Klimkovice	1	1.09%	Toušeň	1	1.09%
Konstantinovy Lázně	1	1.09%	Třeboň	1	1.09%
Kostelec u Zlína	1	1.09%	Velichovky	1	1.09%
Lázně Bělohrad	1	1.09%	Velké Losiny	1	1.09%
Lázně Bohdaneč	1	1.09%	Vráž	1	1.09%
Lázně Kundratice	1	1.09%			

Note: n_t total counts; n_r relative counts. Source: own processing of data from the Czech Inspectorate of Spas and Baths (ČIL), 2023.

[2] Some businesses have establishments in multiple spa locations.

[3] Three spa sites in the Czech Republic (Běloves, Bílina, Dubí) are currently inoperative.

Furthermore, 27 spa establishments in the Slovak Republic were approached, offering their services in 22 spa locations[4] (Table 2). The database of spa establishments and spa places is taken from the documents of the Association of Slovak Spas. The concentration of spa establishments is significantly smaller in the Slovak Republic than in the Czech Republic. Most of the spas are located in the High Tatras region. In most cases, these are commercial companies and, in a few cases, establishments of state institutions.

A total of 47 responses were recorded (return rate 40.00%), two of which were discarded from the final set as erroneous or incompletely filled-in questionnaires. The responses were collected under the promise of maintaining respondent anonymity. Among 47 participating spa establishments, the respondents included 4 owners (stakeholders), 5 managers from the customer relations department, 5 managers from the innovation/development department, 15 CEOs (general directors), and 18 managers from the marketing department. The research focused on the five-year period 2018-2022 and thus included the pre-covid period as well as the period of the coronavirus pandemic, and the immediate post-pandemic phase. The survey was conducted between August 18, 2023, and November 12, 2023 (data collection period), using the extended (paid) version of the Survio platform for the questionnaire. The questionnaire was divided into four basic areas – general characteristics of the spa establishment, innovation as a tool for increasing competitiveness, measurement of innovative ability/performance, and the possibility of applying innovation in the spa establishment. In particular, the questionnaire consisted of 27 questions. The first 18 questions contained the actual research on innovation activities. The remaining questions were the identification set and served to create the basic characteristics of individual spa establishments.

Table 2
Spa places and the number of spa establishments in the Slovak Republic

Spa location	n_t	n_r (n = 27)	Spa location	n_t	n_r (n = 27)
Bardějov	2	7.41%	Nimnica	1	3.70%
Bojnice	1	3.70%	Piešťany	2	7.41%
Brusno	1	3.70%	Rajecké Teplice	1	3.70%
Bystrá	1	3.70%	Sklené Teplice	1	3.70%
Červený Kláštor	1	3.70%	Sliač	1	3.70%
Číž	1	3.70%	Smrdáky	1	3.70%
Dudince	1	3.70%	Štós	1	3.70%
Kováčová	1	3.70%	Trenčianské Teplice	1	3.70%

[4] Two spa sites are currently inoperative. These are Korytnice and Kunerad.

Table 2
Spa places and the number of spa establishments in the Slovak Republic (cont.)

Spa location	n_t	n_r (n = 27)	Spa location	n_t	n_r (n = 27)
Liptovský Ján	1	3.70%	Turčianské Teplice	1	3.70%
Lučivná	1	3.70%	Vysoké Tatry	4	14.81%
Lúčky	1	3.70%	Vyšné Ružbachy	1	3.70%

Note: n_t total counts; n_r relative counts. Source: own processing of data from the Association of Slovak Spas (ASK), 2023.

Statistical evaluation of the obtained data included univariate descriptive statistics, timeline analysis, and bivariate statistical analysis including statistical testing using the Kruskal-Wallis test followed by a post-hoc multiple comparison test, at multiple levels of significance. Furthermore, the method of causal research and the method of comparative analysis of spa establishments in the Czech Republic and the Slovak Republic were used.

Given the unique context of the Czech Republic (and the Slovak Republic respectively), especially with regard to the specific definition of "spa" under Act No. 164/2001 Coll., our research and its aim are exploratory in nature. There are no predictions regarding dependencies and differences between the individual periods or countries being compared. In connection with the set aim, we posed 4 research questions:

1) What was the development in the number and type of innovations in spa establishments in the Czech Republic and the Slovak Republic in 2018-2022?
2) How did the development in the number and type of innovations in the spa establishment differ in 2018-2022 depending on the countries, i.e., the Czech Republic and the Slovak Republic?
3) What was the structure of the innovations carried out in spa establishments in the Czech Republic and the Slovak Republic in 2018-2022, in terms of specific innovations, implementation barriers, and financing?
4) What benefits are perceived as the most and the least important after the introduction of innovations in 2018-2022 in spa establishments in the Czech Republic and the Slovak Republic?

Results

The research on spa facilities in the Czech Republic and the Slovak Republic focused on finding answers to several questions. The first research question we sought to answer was "What was the development in the number and type of innovations in spa establishments in the Czech Republic and the Slovak Republic in the period of 2018-2022?" (Figure 1). The results show that while product

innovations were dominant in 2018 and 2019, these innovations fell to the lowest value of all types of innovation in the COVID-19 year of 2020 and were no longer the most numerous in the following years either. On the contrary, technical and technological innovations, which were already on the rise in 2019, assumed a dominant share in the COVID-19 year of 2020 and remained in a very good position in 2021 and 2022. Organizational innovations recorded lower values for a long time, except in 2020 when their share increased slightly. It is important to underline that in the last two years, however, marketing innovations have had a leading position.

Overall, the timelines can therefore be divided into three periods: 1) pre-covid with the dominant position of product innovation, 2) covid with the dominant position of technological innovation, and 3) post-covid with the dominant position of marketing innovation. When comparing the initial period of 2018 and the final period of 2022, it can be argued that all innovations, except product innovations, recorded an increase in number.

If we look at the prediction for 2024 - the planned innovations on the minor axis of Figure 1 - it can be argued that the planned organizational innovations will not be fundamentally different in terms of proportions compared to 2022. They should continue to be the least used innovations, with only 11 establishments planning to introduce them (24.40% of all establishments). The remaining three types of innovation, i.e., product, technological, and marketing, should be significantly more represented in terms of proportions in 2024. Marketing innovations are planned to be introduced by 26 spa establishments (57.80% of all establishments), which also corresponds to their high popularity in 2022. On the other hand, compared to the current development in 2022, a proportional increase is expected, especially for technological innovations, which are planned to be introduced by 27 spa establishments (60.00% of all establishments), and for product innovations planned to be introduced by 29 spa establishments (64.4% of all establishments). Thus, for the first time since the COVID-19 year of 2020, the frequency of product innovations is expected to surpass the number in 2018.

Overall, it can be said that product and marketing innovations seem to be the most dynamic in growth, or decline and subsequent growth. This dynamic is apparently exacerbated by crises. In contrast, technological innovations, which seem to require a longer time horizon for implementation, are indeed transformative, but less dynamic. Organizational innovations are then the least dynamic ones.

For the establishments that introduced innovations we tried to find out, "How did the development in the number and type of innovations in the spa establishment differ in the in the period of 2018-2022 depending on the countries, i.e., the Czech Republic and the Slovak Republic?" A total of 30 spa establishments introduced the innovation, of which 76.70% were from the Czech Republic and 23.30% from the Slovak Republic. Figure 2 shows the differences in

the types of innovations and, at the same time, grouped by country, i.e., the Czech Republic and Slovak Republic.

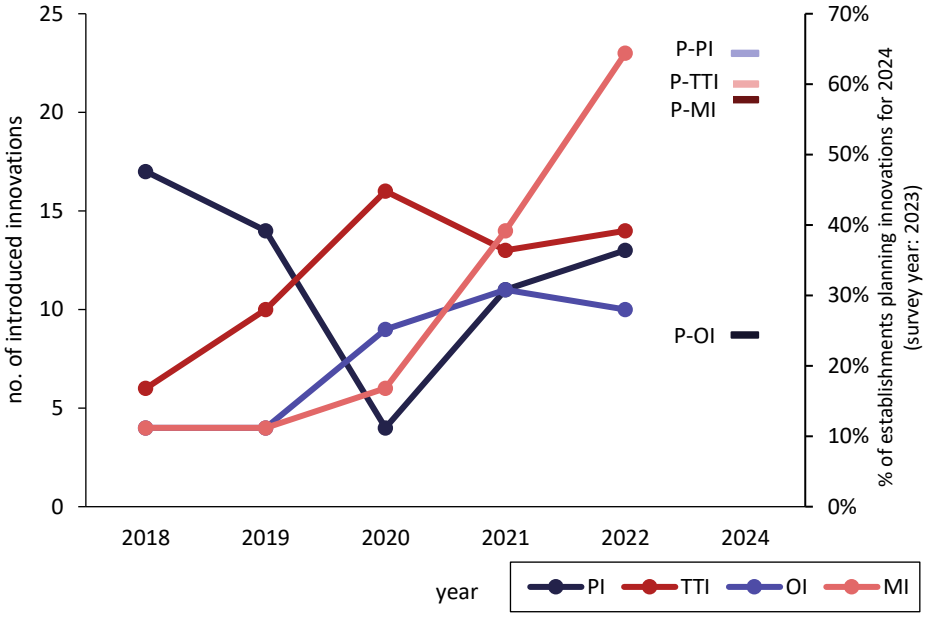

Figure 1
Basic types of innovations implemented in the period 2018-2022
Note: PI – Product innovation (improved or new product); TTI – Technical and technological innovations (new technologies, evaluation of fixed tangible assets); OI – Organizational innovation (managerial, process changes in approaches, processes or tools for managing the organization); MI – Marketing innovation (introduction of new modern ways of communication and marketing towards customers). The P-letter before these abbreviations stands for planned innovations.

In terms of product innovations, a larger share of innovating establishments can be seen in the Czech Republic in 2018 and 2019. However, there is a sharp decline in the COVID-19 year of 2020 in the Czech Republic. On the contrary, in Slovakia, there has been a significantly faster revival of product innovations since 2020. In 2022, there is an equalization for both countries. Technological innovations have similar development when comparing the two countries. A larger share of innovative establishments is evident in the Czech Republic until the landmark year 2020 when Slovakia takes the lead. Organizational innovations show a long-term stagnation in the development of the share of innovating establishments in the Czech Republic. On the contrary, in Slovakia, there was a sharp increase in them from 2019, but in 2022 they were dampened. Marketing innovations in both countries show long-term growing tendencies, while the growth can be considered faster in Slovakia than in the Czech Republic.

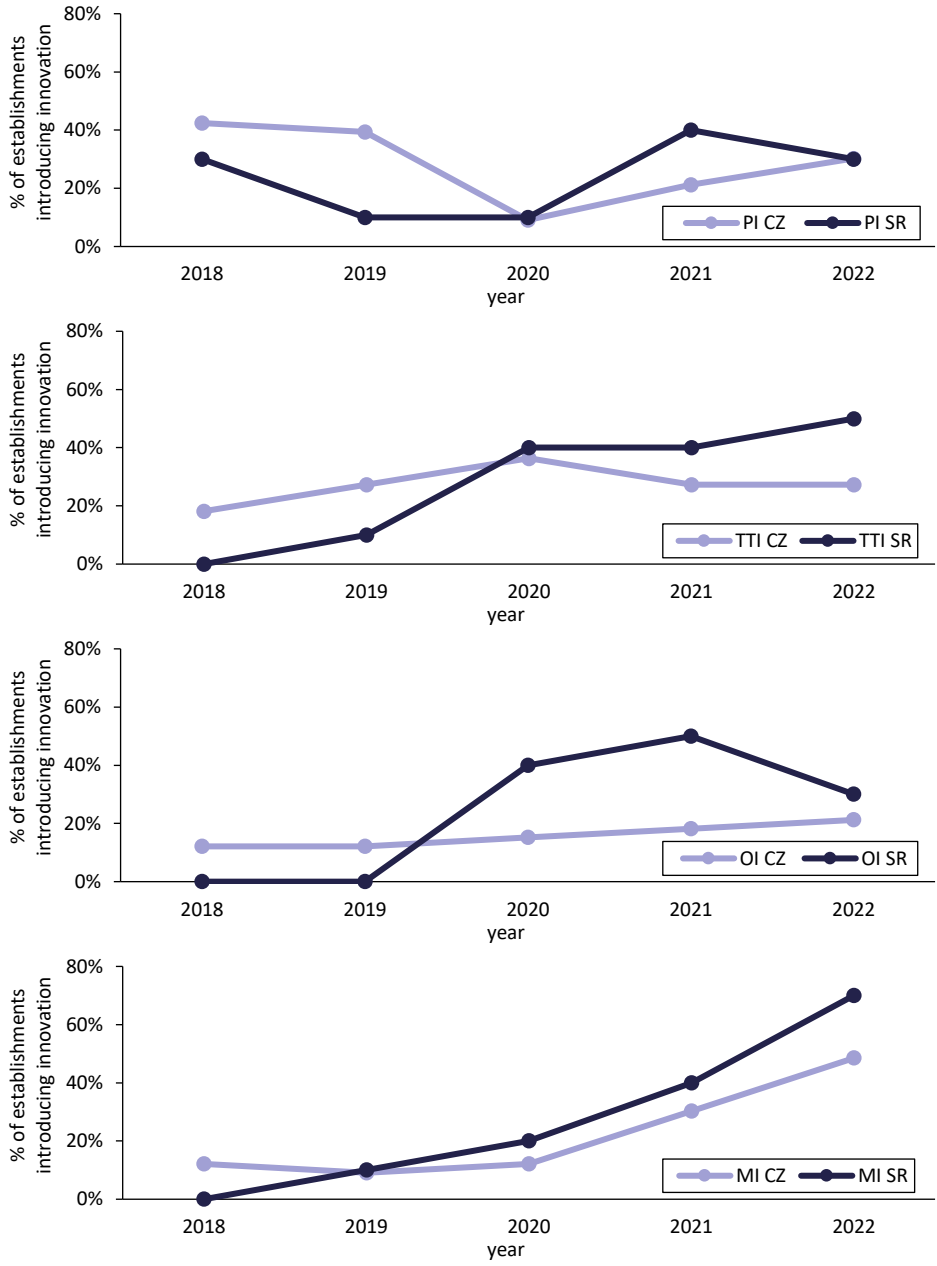

Figure 2

Trends in the introduction of innovation types - the difference between the Czech Republic and the Slovak Republic

Note: PI – Product innovation; TTI – Technical and technological innovations; OI – Organizational innovation; MI – Marketing innovation. CZ – Czech Republic; SR – Slovak Republic.

Overall, the COVID-19 year of 2020 and the period immediately after it can be considered a breakthrough, in most cases starting innovation processes. When comparing the two countries, Slovakia can be considered more dynamic, subject to sharp increases but also decreases in innovative companies. The exception to both of the above statements is the decline in product innovations in the Czech Republic in 2020, which, however, can be attributed to their high initial value.

Another part of the results aims to answer the question, "What was the structure of the innovations carried out in spa establishments in the Czech Republic and the Slovak Republic in 2018-2022, in terms of specific innovations, implementation barriers, and financing?" We analyze this issue in turn for all 4 types of innovation and for each type, we take a closer look at the more specific structure of innovation. It is important to mention that while the original categorization required the respondents to classify their innovations under one of 4 types, the following set of questions allowed the respondents to classify one innovation under multiple items. This is also why the frequency of innovations mentioned in the following section may exceed the frequency of innovations mentioned in the previous section.

The first area of investigation was product innovation in the spa industry. Here, the respondents had a choice of six types of responses (Table 3). The answers to this question did not bring any major surprises. Establishments (70.00%) continue to innovate, particularly in standard medical treatments based on the use of natural healing resources. One of the reasons for this is the possibility of applying such procedures to services that are reimbursed by health insurance companies in the Czech Republic as part of comprehensive and contributory spa care. The same is true in the Slovak Republic under so-called Mode A or Mode B health care. More than half of the respondents (60.00%) also mentioned spa wellness innovations. It is clear that spa establishments need to innovate in commercial activities (wellness, leisure stays) that are economically important to them. This situation is influenced by the low payments made by health insurance companies for insured persons who have approved spa care covered or co-financed by public health insurance. As the third most important, establishments (36.67%) mentioned innovations in post-covid treatments, which can also be connected to the revival of product innovations after 2020.

The survey clearly shows that product innovation is the most important among the four types of innovations (the highest mean value of importance). This finding is also consistent with the growing number of product innovations after 2020 and the highest expected proportion of product innovations compared to other types of innovations in 2024.

Table 3
Structure of product innovations introduced in the period 2018-2022

Structure of product innovations	**n_t**	**n_r (n = 30)**
Product focused on standard medical procedures	21	70.00%
Product focused on spa wellness	18	60.00%
Product focused on post-covid treatment	11	36.67%
Product focused on sports and recreational stays	7	23.33%
Product focused on alternative treatments	5	16.67%
Other	2	6.67%
Perceived importance of product innovations	**Rank amongst other type of innovations**	
3.3	1st	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced product innovations).

Another area of interest was technical and technological innovations carried out in 2018-2022. The respondents had a choice of a total of five types of answers (Table 4). The most significant area of technical and technological innovation in the period 2018-2022 was the building modifications (83.33% of establishments) ranking as the most important innovation throughout all four basic types of innovations. The second most common form of technical or technological innovation was the purchase of new technologies directly related to the provision of health and spa services (56.67% of establishments). Building modifications to the external surroundings, or the spa areas surrounding the spa buildings, represent the third most frequent form of technical or technological innovation (43.33% of establishments). As the innovations connected to robotization and automation ranked as the least frequent technological innovation, it can be concluded that Czech and Slovak spa establishments still prefer working with human capital. However, it will be interesting to monitor future developments, as technological innovations are also expected to continue to grow in 2024. The high importance of technological innovations also corresponds to the fact that they were perceived by the respondents as the second most important after product innovations.

The third type of innovation which the research focused on was organizational innovation (Table 5). The possible answers were formulated very broadly (a total of 16 possible answers). Three forms of organizational innovation stand out among the answers. The most significant is the change in the organizational structure of the establishment (53.33% of establishments). The second most significant organizational innovation was a change in the management of the establishment and the associated change in managerial methods and approaches to managing the establishment (36.67% of establishments). In ten cases (33.33%

of establishments), the respondents implemented changes leading to higher work productivity. Other answers were significantly less frequent. By distance, organizational innovations were ranked as the least important among the four basic types of innovations (the lowest mean value). It also corresponds to the lowest expected proportion of organizational innovations in 2024 as well as to the least dynamic development in the timelines between 2018 and 2022.

Table 4
Structure of technical and technological innovations introduced in the period 2018-2022

Structure of technical and technological innovations	**n_t**	**n_r (n = 30)**
Building modifications to the building owned by the enterprise/organization (modernization of premises, extensions, barrier-free measures, etc.)	25	83.33%
Purchase of new technologies directly related to the provision of health and spa services	17	56.67%
Building or landscaping works to the exterior of buildings in which spa services are provided (landscaping of gardens, construction of a gazebo, outdoor rehabilitation playground, etc.)	13	43.33%
Purchase of new technologies related to savings in human labor (automation and/or robotization of internal processes)	8	26.67%
Other	0	0.00%
Perceived importance of technical and technological innovations	**Rank amongst other type of innovations**	
2.7	2nd	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced technical and technological innovations).

Table 5
Structure of organizational innovations introduced in the period 2018-2022

Structure of organizational innovations	**n_t**	**n_r (n = 30)**
Change in the organizational structure of the company	16	53.33%
Change in the management of the company and related changes in the managerial method of approaching the management of the company (change in planning, strategic management, change in objectives, etc.)	11	36.67%
Change leading to higher labor productivity	10	33.33%
Change in additional services	9	30.00%
Change in supplier relationships	8	26.67%
Change leading to an increase in the quality of services provided (introduction of regular staff training, etc.)	8	26.67%

Table 5
Structure of organizational innovations introduced in the period 2018-2022 (cont.)

Structure of organizational innovations	**n_t**	**n_r (n = 30)**
Change in the booking system for accommodation services	8	26.67%
Change in customer relationships	7	23.33%
Change or modernization of internal systems (communication, financial, control), etc.	7	23.33%
Change in the system and process of planning procedures	5	16.67%
Change in food service processes (e.g. ordering methods, rotation of clients in dining rooms, etc.)	5	16.67%
Change in the offer and provision of cultural and social services	5	16.67%
Introduction of outsourcing (cleaning, accounting, IT management, etc.)	3	10.00%
Change in the system of communication with partners (insurance companies, travel agencies, etc.)	3	10.00%
Change leading to differentiation of traditional spa programs from wellness programs	2	6.67%
Other	0	0.00%
Perceived importance of organizational innovations	**Rank amongst other type of innovations**	
1.5	4^{th}	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced organizational innovations).

For marketing innovations, respondents could choose from five types of responses (Table 6). The most frequent was the change in marketing communication, which was implemented by 73.33% of spa establishments. The result is not surprising, as the field of marketing communication is generally undergoing rapid development. The second most frequent response was reaching out to new markets (63.33% of establishments). It is, firstly, a matter of finding new segments geographically, as there have been significant changes in inbound tourism as a result of both the coronavirus pandemic and changes in the international political and security situation. The change in pricing policy was mentioned by 40.00% of spa establishments. Surprisingly, marketing innovations were ranked as the third most important ones, however, they were the most prominent in 2022, and are still expected to prevail with a high proportion in 2024.

Table 6
Structure of marketing innovations introduced in the period 2018-2022

Structure of marketing innovations	**n_t**	**n_r (n = 30)**
Change in marketing communication	22	73.33%
Reaching new markets	19	63.33%
Changing pricing policy	12	40.00%
Changing the way products are distributed	10	33.33%
Other	0	0.00%
Perceived importance of marketing innovations	**Rank amongst other type of innovations**	
2.5	3rd	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced marketing innovations).

It was also important for us to observe the possibilities of public funding of innovation activities and perceived barriers when implementing the innovations (Table 7). Also in this case, the respondents could choose more than one answer as they could use more funding options for one innovation, or they could see more barriers at a time. In terms of public funding, national subsidies ranked first, used by 46.67% of spa establishments, while European subsidies were the second most used source of funding at 26.67%. Interestingly, no subsidies were used by 11.11% of spa establishments.

Table 7
Use of public funding to support innovation and perceived barriers limiting the innovation activities of establishments

Type of public funding	**n_t**	**n_r (n = 30)**
National subsidies	21	46.67%
European subsidies	12	26.67%
National subsidies (excluding COVID-19 pandemic support)	5	11.11%
Regional innovation vouchers	2	4.44%
Other regional funding	1	2.22%
Municipal subsidies	1	2.22%
Other	2	4.44%
Type of barrier	n_t	n_r (n = 30)
Financial barriers - lack of financial resources	30	66.67%
Economic barriers - inflation and high interest rates, unavailability of credit, inability to obtain subsidies	30	66.67%
Political and security barriers - uncertainty about future market developments, etc.	16	35.56%

Table 7
Use of public funding to support innovation… (cont.)

Type of public funding	n_t	n_r (n = 30)
Lack of support from public authorities (state and local government)	9	20.00%
Technological barriers - the impossibility of introducing certain technologies	7	15.56%
Other	4	8.89%
"I don't perceive any barriers"	0	0.00%

Note: n_t total counts; n_r relative counts.

The respondents identified two barriers as the most important ones, namely financial and economic. In both cases, 66.67% of establishments stated this was the case. Political and security barriers were mentioned as the third largest barrier by 35.56% of establishments. These barriers cause uncertainty about the future development of the market, the sector, etc. Less frequent barriers as insufficient support from public authorities or technological barriers were also mentioned. If the respondents indicated that they saw other barriers, these were insufficient human resources and organizational barriers. An important outcome from the responses obtained is that none of the respondents thought that there were no barriers. Since the respondents could identify more than one barrier, the top two most frequently identified barriers were financial in the form of lack of financial resources, and economic barriers in the form of external influences such as inflation rates, high interest rates, unavailability of credit, inability to obtain subsidies, etc.

The fourth part of the results deals with the question, "What benefits are perceived as the most and the least important after the introduction of innovations in 2018-2022 in spa establishments in the Czech Republic and the Slovak Republic?" When comparing the benefits brought by innovation to the establishment graphically (Figure 3) and statistically (Table 8), it is clear that there is a statistically significant difference between the individual types of benefits ($H = 44.29$; $p < 0.01$). The highest benefit is achieved for "quality of service" and "increase of sales" criteria. On the other side of the spectrum, the benefits with the lowest value are "reduction of costs", "increased labor productivity", and "increase in the efficiency of the company's processes". The perception of the significance of these benefits differed statistically significantly – specifically, all three benefits with the lowest value differed from "quality of service" ($p < 0.01$). Even the second in order, i.e., "increase of sales" was statistically significantly different from "reduction of costs" ($p = 0.01$), indicating the lowest value of all for "reduction of costs". For the two criteria rated as most beneficial, there was also the greatest agreement (with the lowest standard deviation) in ratings. On the other hand, the most contradictions in the evaluation were about the "gaining a new market" criterion. The potential for further, more detailed research can thus be seen in this case.

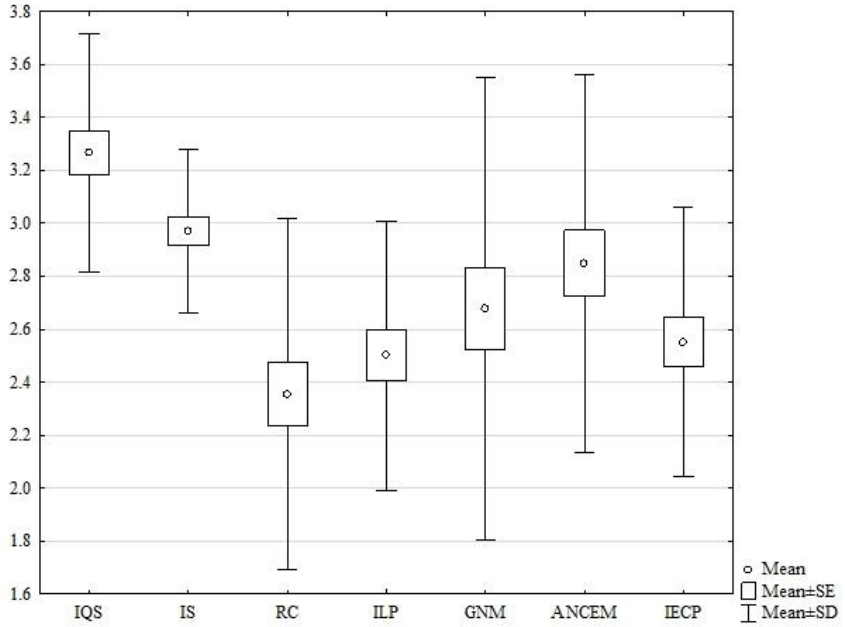

Figure 3
Degree of benefits brought by innovation to the establishment
Note: IQS – Increasing the quality of service; IS – Increase in sales; RC – Reduction of costs; ILP – Increase labor productivity; GNM – Gaining a new market; ANCEM – Acquiring new clients in the existing market; IECP – Increase the efficiency of the company's processes. Measured on a 4-point Likert scale (4 – very high benefit, 1 – very low benefit). Inequal group sizes appeared due to the option "I can't tell".

Table 8
Kruskal-Wallis test and multiple comparisons of differences between benefits brought by innovation to the establishments (*p-values, 2-tailed*)

Kruskal-Wallis test: H (6, n = 214) = 44.29; p = <0.01**							
	IQS	IS	RC	ILP	GNM	ANCEM	IECP
IQS	-						
IS	1.00	-					
RC	<0.01**	0.01*	-				
ILP	<0.01**	0.14	1.00	-			
GNM	0.06	1.00	1.00	1.00	-		
ANCEM	0.52	1.00	0.15	1.00	1.00	-	
IECP	<0.01**	0.32	1.0	1.00	1.00	1.00	-

Note: IQS – Increasing the quality of service; IS – Increase in sales; RC – Reduction of costs; ILP – Increase labor productivity; GNM – Gaining a new market; ANCEM – Acquiring new clients in the existing market; IECP – Increase the efficiency of the company's processes. *shows statistically significant result at α = 5%; ** shows statistically significant results at α = 1%.

The above-mentioned results can be interpreted in such a way that while the introduction of innovations in spa facilities meant an increase rather than a reduction in costs, on the other hand, there were benefits associated with a higher quality of service and higher incomes. At the same time, however, it is necessary to point out the fact that these benefits were not linked to the fact that the productivity of work or the established processes of the company would be increased/changed. It can thus be assumed that innovations (despite their cost) work in a smart way that does not require higher productivity and yet leads to definite financial and qualitative benefits.

When evaluating the financial benefits (see Figure 4 and Table 9), "revenue" and "enterprise value" were seen as the most positive. The first of these criteria also showed the greatest agreement in its high benefit (with the lowest standard deviation). On the contrary, "reduction of indebtedness" was rated the least positively. This particular criterion was evaluated statistically significantly worse than the two best-evaluated criteria ($p < 0.01$; $p = 0.03$). Overall, even this set of questions shows statistically significant differences ($H = 32.76$; $p < 0.01$). The results of the evaluation of the financial indicators correspond well with the previous part of the results. A positive effect on revenue can be associated with a positive effect on increased sales. On the contrary, the creation of costs can be associated with the impossibility of eliminating debts when introducing innovations.

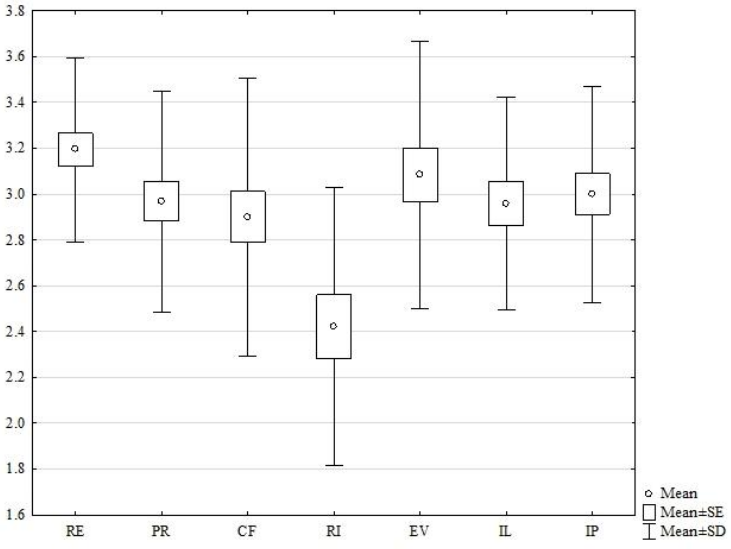

Figure 4
Degree of economic benefits or advantages brought by innovations to the establishment
Note: RE – Revenue; PR – Profit; CF – Cash flow; RI – Reduction of indebtedness; EV – Enterprise value; IL – Increase in liquidity; IP – Increase in profitability. Measured on a 4-point Likert scale (4 – very positive, 1 – very negative). Inequal group sizes appeared due to the option "I can't tell".

Table 9
Kruskal-Wallis test and multiple comparisons of differences between economic benefits or advantages brought by innovation to the establishments (*p-values, 2-tailed*)

Kruskal-Wallis test: H (6, n = 187) = 32.76; p = <0.01**							
	RE	PR	CF	RI	EV	IL	IP
RE	-						
PR	1.00	-					
CF	1.00	1.00	-				
RI	<0.01**	0.13	0.36	-			
EV	1.00	1.00	1.00	0.03*	-		
IL	1.00	1.00	1.00	0.20	1.00	-	
IP	1.00	1.00	1.00	0.09	1.00	1.00	-

Note: RE – Revenue; PR – Profit; CF – Cash flow; RI – Reduction of indebtedness; EV – Enterprise value; IL – Increase in liquidity; IP – Increase in profitability. *shows statistically significant result at α = 5%; ** shows statistically significant results at α = 1%.

Discussion

Our study showed that the year 2020, which can be associated with the greatest impact of the crisis not only on the spa but the entire hospitality sector, was a turning point in the development of innovations. It turned out that in this year and after, there was a dynamic development in some kinds of innovation, and it seems that several spa establishments carried out a process of "rethink the future" (Sovani, 2022). The importance of innovation in the hospitality sector during the crisis of COVID-19 has already been demonstrated in other studies (Breier, Kallmuenzer, Clauss, Gast, Kraus, and Tiberius, 2021). While these studies examined, for example, business innovations, our study examined innovations divided into four types – product, technical and technological, organizational, and marketing innovations.

Regarding the particular results of our study, the rapid growth of marketing innovations, especially after 2020, and the revival of product innovations (although not to such an extent) can also be explained by the complementary nature of both types of innovations, i.e., when the introduction of new products comes to the market hand in hand with marketing activities, as written by Ebersberger, Herstad, and Nordli (2021). Although the reasons for the growth of technological innovation during periods of crisis may be obvious, some studies in the field of hospitality have shown that they are also important because of the increase in sales turnover (Martin-Rios and Ciobanu, 2019). Although our study shows that organizational innovations are considered the least important by spa

operators, foreign experience shows that they should not resent such innovations. A study in the hospitality field by Gupta and Sahu (2021) conducted in India showed that training programs as a method of innovation significantly increased guest satisfaction.

Our study also offers a limited prediction of the development of innovations, so it follows other thematically similar studies previously published (Valença, Sobral, Andrade Lima, and Farias, 2020). As for the cross-country comparison of innovations in spa establishments, i.e., the comparison between the Czech Republic and the Slovak Republic, our study extends the smaller number of other already published studies on this topic (Senkova, Kolesarova, and Kosikova, 2024). In the business environment in the Czech Republic, it has also been proven that the application of innovations is strongly dependent on international linkages, e.g., foreign technological innovations or certificates (Odei and Appiah, 2023).

Our study showed that spa establishments mainly use national and European subsidies. There are still about a tenth of spa facilities that do not use subsidies at all. In the past, it has been proven that subsidies are essential in the entire hospitality sector and have a positive effect on the performance of these establishments (Tundis, Gabriele, and Zaninotto, 2017). The use of possible subsidies is all the more important when we discovered that the biggest perceived barriers on the part of the spa establishments we approached were financial and economic barriers.

As far as the perception of the benefits of innovations is concerned, our finding that innovations for increasing service quality are the most beneficial is also essential because previously conducted studies found a positive effect of innovations in service quality on customer loyalty in the hospitality sector (Satti, Babar, Parveen, Abrar, and Shabbir, 2020). On the contrary, the fact that our respondents did not perceive a positive effect of innovation on labor productivity is striking. Bhat and Sharma (2021) proved that service innovations significantly increase the productivity of employees in the hospitality industry.

The findings are important in several ways. They build on the work of some Czech authors (Marková, 2022; Attl and Pátek, 2021) and Slovak authors (Štefko, Jenčová and Vašanicová, 2020) who are working on this issue. They also build on the activities of research institutions, such as the Institute of Spa and Balneology or The Research Institute of Spa Industry. Another example of innovative activities is the Innovation Platform for Spa and Balneology. However, it can be stated that in terms of the scope and depth of research, this study is the most representative and extensive research on innovation in the spa sector, which has no parallel in the Czech or Slovak environment in recent years.

At the same time, it should be emphasized that most European studies focused on innovations in spa tourism are based on a broader concept of the spa

industry compared to what is defined and regulated by legislation in the Czech Republic and the Slovak Republic (Plzáková and Crespo Stupková, 2019). In these two countries, the authors assume that health spa is based on natural healing resources and it is built on science as a necessary part of qualified medical care (Šenková, 2021). This definition thus usually creates narrower conditions for the application of innovation as well as for the international comparisons.

Concluding Remarks

Our study examined the issue of innovations in the spa sector in the Czech Republic and the Slovak Republic, specifically their development over time, their cross-country comparison, their specific structure, and, finally, the perceived benefits of these innovations by spa establishments. Our investigation showed that the spa sector has a high potential for research activity. The study pointed to several findings that would be appropriate for a more detailed future investigation, for example, using a qualitative methodology. Furthermore, it can be recommended to continue monitoring the selected innovation indicators in the following years. This would allow the analysis to extend beyond the post-pandemic phase. The limits of the study, which also limit the statistical evaluation, are mainly determined by the number of respondents. However, from our perspective, it is not possible to increase it significantly as the number of spa facilities in the Czech Republic and the Slovak Republic is limited.

Specific recommendations involving business improvement result from partial findings of the research. It is clear that in the Czech Republic and Slovakia, a higher application of organizational innovations can be recommended, as is the case abroad, where these approaches, as mentioned above, lead to higher guest satisfaction. Innovations are, based on the presented findings, a fundamental way to improve the quality of services provided. The application of innovations should therefore be an elementary means for the purpose of continuous quality improvement. Another recommendation concerns not only spa businesses, but also the state administration as a provider of subsidies - there is still a significant part of spa facilities that do not use subsidies, despite the fact that the most important obstacle to the introduction of innovations for the operators themselves is the lack of financial resources.

Another recommendation concerns monitoring associated with the implementation of innovations - spa facilities should quantify labor productivity before and after the application of innovations. The proclaimed unchanged labor productivity by the spa operators we surveyed raises questions and should be a trigger for readjusting internal monitoring. We can also say that innovation in the form of acquiring new markets, which was considered the second most im-

portant innovation by the spa facilities we surveyed, and is a fundamental innovation practice around the globe, is not perceived positively by some of the operators in the Czech Republic and Slovakia. A follow-up survey should find out why this is the case. With regard to COVID-19, state support has proven useful, and the pandemic threat was transformed by some operators into an opportunity when they introduced post-covid treatment of diseases as a product innovation. However, we believe that this approach is specific to the spa area and might not be applicable in other fields.

Lastly, innovation activities in the spa sector are currently perceived by the European Spa Association as a priority task. The highlight of ESPA's activities in this area is the annual ESPA Innovation Award competition, which spa establishments from the Czech Republic will also participate in. It can be assumed that especially with advancing scientific knowledge, automation, robotization, the application of artificial intelligence, and other knowledge, the innovation process in the spa industry will continue to accelerate. The reason is the pressure to maintain and increase the competitiveness of the spa industry within the health system of individual countries and also within the framework of other forms of tourism.

STATEMENT OF ETHICS

The authors report that all study participants agreed in advance to participate in the questionnaire survey, which was completely anonymous. The Ethics Committee of University College Prague approved the research under the number 03092023A.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interests with respect to the research, authorship, and/or publication of the article *The Importance of Innovation in the Czech and Slovak Spa Industry: The COVID-19 Era and Beyond.*

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AUTHORS' CONTRIBUTIONS

Josef Pátek: Conceptualization, Methodology, Data Curation, Validation, Original Draft.
Jiří Zelený: Data Curation, Analysis, Investigation, Visualization, Validation, Review & Editing.
Lucie Plzáková: Conceptualization.
Petr Studnička: Conceptualization, Methodology, Data Curation, Validation, Original Draft.
All authors approved the final version of the manuscript.

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