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JAZ U DIGITALNIM VJEŠTINAMA U TURIZMU BUGARSKE

DIGITAL SKILLS GAPS IN THE BULGARIAN TOURISM INDUSTRY

SAŽETAK: U ovome se članku razmatraju aspekti jaza u digitalnim vještinama u bugarskom turizmu na temelju istraživanja koje je koristilo različite metode i obuhvatilo 135 ispitanika putem internetskog upitnika i 16 intervjuiranih sudionika. Rezultati su otkrili da su glavne vještine digitalne pismenosti (rad s operativnim sustavima, vještine rada u programima MS Office i vještine prilagodbe digitalne opreme) najvažnije kako za postojeće tako i za buduće potrebe pa je i njihov jaz najmanji. Vještine koje se odnose na umjetnu inteligenciju, robotiku, unaprijeđenu i virtualnu stvarnost te računalno programiranje najniže su rangirane s obzirom na korištenje. Iako se očekuje da će u budućnosti rasti, ostat će najmanje značajne. Učenje uz rad najpopularnija je metoda osposobljavanja u digitalnim vještinama, iako je gotovo polovica ispitanika izjavila da im tvrtke uopće ne osiguravaju edukaciju u području digitalnih vještina.

KLJUČNE RIJEČI: digitalne vještine, jaz u vještinama, turizam, Bugarska

ABSTRACT: The paper discusses the digital skills gaps in the Bulgarian tourism industry based on mixed methods research. The sample includes 135 respondents to an online questionnaire and 16 interviewees. The findings reveal that key digital literacy skills (dealing with operating systems, MS Office software skills, and skills for adjusting digital equipment) are the top skills both for the current level and for the future needs and they have the lowest skills gaps. Artificial Intelligence and robotic skills, skills related to augmented and virtual reality, and computer programming skills are the lowest-rated skills for their current availability. Although they are expected to grow much in the future, they will remain the three least important skills. On the job training was the most popular digital skills training method but nearly half of respondents reported their companies provided no digital skills training at all.

KEY WORDS: digital skills, skills gap, tourism, Bulgaria

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1. UVOD

Digitalne tehnologije stubokom su izmijenile turizam (Ivanov i Webster, 2019; Buhalis, 2020) i stvorile potrebu za zaposlenicima koji imaju određene digitalne vještine za rad s naprednim alatima (Sousa i Rocha, 2019). Kriza s virusom COVID-19 intenzivirala je digitalnu transformaciju (OECD, 2020) zbog potrebe za tehnologijama koje osiguravaju fizički razmak i beskontaktnu interakciju (Seyitoğlu i Ivanov, 2021). Digitalne vještine postaju ključni element kvalifikacija potrebnih za sljedeću generaciju turističkih djelatnika (Morellato, 2014; Carlisle, 2021) i razvoj pametnih turističkih destinacija (Bulchand-Gidumal, 2022). Štoviše, današnji su turisti digitalno osviješteni i očekuju odgovarajuće usluge od digitalno kompetentnih zaposlenika. Na putu ka sve digitaliziranijem svijetu razlike između postojećih i traženih razina vladanja vještinama u organizacijama smanjuje njihovu konkurentnost i produktivnost (Nikolov *et al*., 2018). Stoga bi turističke organizacije trebale predvidjeti svoje potrebe za digitalnim vještinama i usredotočiti se na prikladne edukacije za prevladavanje tih nedostataka.

U izvješću Europske komisije o Indeksu digitalnoga gospodarstva i društva (DESI) iz 2021. godine Bugarska je među najniže pozicioniranim zemljama s obzirom na digitalizaciju gospodarstva i društva jer ima najmanje stanovnika s osnovnim digitalnim vještinama – samo 29% ukupne bugarske populacije između 16 i 74 godina u usporedbi s 56% prosjeka Europske unije (European Commission, 2021). U tom kontekstu ova analiza istražuje percepcije bugarskih turističkih stručnjaka u odnosu na sadašnje i buduće potrebe za digitalnim vještinama u organizacijama i utvrđuje ulogu veličine i turističkog podsektora s obzirom na postojeću razinu digitalnih vještina, buduće potrebne razine i jaza među njima.

1. INTRODUCTION

Digital technologies transformed profoundly the tourism industry (Ivanov and Webster, 2019; Buhalis, 2020) and created the need for more competent employees with certain digital skills to deal with the more sophisticated devices (Sousa and Rocha, 2019). COVID-19 crisis additionally amplified the digital transformation (OECD, 2020) by demanding technologies that ensure physical distance and touchless interactions (Seyitoğlu and Ivanov, 2021). Digital skills become a critical part of the job profiles for the next generation of tourism employees (Morellato, 2014; Carlisle, Ivanov and Dijkmans, 2021) and the development of smart tourism destinations (Bulchand-Gidumal, 2022). Furthermore, nowadays tourists are digitally savvy and demand relevant services from digitally competent employees. On the way to a more digitalised world, the discrepancy between the current and the required skills levels in organisations decreases their competitiveness and productivity (Nikolov *et al*., 2018). Therefore, tourism organisations need to anticipate their future digital skills needs and focus on appropriate digital skills training to overcome them.

The 2021 European Commission report on the Digital Economy and Society Index (DESI) outlined Bulgaria at one of the lowest positions regarding the digitalisation of economy and society with the lowest share of people with basic digital skills – only 29% of the total Bulgarian population aged 16-74, against the EU average of 56% (European Commission, 2021). In this context, the current study explores Bulgarian tourism professionals' perceptions regarding the current and future needs for digital skills in their organisations and identifies the role of size and tourism subsector in the current level of digital skills, the required future level and the gaps between them.

2. METODOLOGIJA

Ovo istraživanje o digitalnim vještinama u Bugarskoj dijelom je većeg istraživanja o različitim vještinama i kompetencijama u turizmu na europskoj razini u okviru projekta *Next Tourism Generation Alliance* (https://nexttourismgeneration.eu) koji se financira kroz program Erasmus+. U istraživanju su se koristile različite metode. U razdoblju od siječnja do ožujka 2019. godine provedena je mrežna anketa i serija intervjua u osam zemalja sudionica (Bugarska, Irska, Italija, Nizozemska, Njemačka, Španjolska i Ujedinjeno Kraljevstvo). U ovoj studiji analiziraju se samo rezultati dobiveni od bugarskih ispitanika. Ciljni ispitanici predstavljali su pet glavnih djelatnosti unutar sustava turizma – smještaj, hrana i piće (F&B), turističke agencije, turistička atrakcije i organizacije destinacijskog menadžmenta (DMO). Odabir digitalnih vještina temeljio se na Okviru digitalnih kompetencija 2.0 (European Commission, 2019). Mrežnom anketom pokrivene su demografske značajke ispitanika i njihovo vrednovanje postojećih i budućih potreba za digitalnim vještinama u njihovim matičnim organizacijama. Ispitanici su sami ocijenili svoje digitalne vještine slično kao u prethodnim ispitivanjima (npr. Castro i Ferreira, 2019). Ljestvica od 5 bodova korištena je za mjerenje razine vještine u organizaciji počevši od 1 (nije prisutna u organizaciji) do 5 (razina stručnjaka). Posljednja skupina pitanja bila je posvećena stručnom osposobljavanju u digitalnim vještinama u tvrtkama. Pitanja u polustrukturiranim intervjuima slijedila su istu logiku i poredak, ali su se dublje propitivale njihove percepcije i mišljenja. Menadžeri organizacija iz ciljanih aktivnosti u turističkom sustavu (podsektora) dobili su poveznicu na upitnik elektronskom poštom, a njihove su se adrese mogle identificirati. K tomu, poveznica je dijeljena u zatvorenim grupama društvenih medija čiji su članovi turistički djelatnici. Više turističkih i ugostiteljskih stručnih udruga distribuiralo je poveznicu na upitnik svojim članovima, a korišteni su i drugi kontakti iz sustava turizma. Za intervjue su

2. METHODOLOGY

This research of the digital skills in Bulgaria was a part of major research on different skills and competencies in the tourism industry across Europe, implemented within the framework of the Next Tourism Generation Alliance (https://nexttourismgeneration.eu), funded by the Erasmus+ programme. Mixed methods research was implemented. An online questionnaire and series of interviews took place in the period January to March 2019, across the 8 participating countries in the project (Bulgaria, Germany, Hungary, Ireland, Italy, Netherlands, Spain, UK). The current paper focuses only on the results obtained from the Bulgarian respondents. The target respondents were representatives from the five main subsectors of the tourism industry – accommodation, food and beverage outlets (F&B), travel agencies, tourist attractions and destination management organisations (DMO). The selected digital skills were based on the Digital Competences Framework 2.0 (European Commission, 2019). The online questionnaire covered the demographic characteristics of the respondents, and their evaluation of the current and future needs for digital skills in the organisations they represented. Respondents self-evaluated the level of digital skills in their organisations similar to previous studies (e.g. Castro and Ferreira, 2019). A 5-point scale was used for measuring the level of a skill in an organisation ranging from 1 (no skill present in the organisation) to 5 (expert level). The last block of questions was dedicated to the provision of training in digital skills in the companies. The questions of the semi-structured interviews followed the same logic and sequence but went into more depth regarding respondents' perceptions and opinions. The link to the questionnaire was distributed by emails to the managers of organisations from the target tourism subsectors whose emails could be identified. Additionally, the link was shared to closed social media groups whose members are tourism professionals. Several tourism and hospitality professional associations distributed the link

istraživači koristili prosudbeno uzorkovanje, a provodili su ih u organizacijama s različitim značajkama (sektor, veličina) kako bi se ispitivalo s različitih motrišta.

Konačni uzorak Bugarske sastoji se od 135 ispitanika u kvantitativnom dijelu i 16 intervjua dobivenih kombinacijom prosudbenog, samo-odabirnog i prigodnog uzorkovanja. Profil ispitanika prikazan je u Tablici 1. Uzorak odražava visoku fragmentaciju turizma u Bugarskoj gdje tržištem dominiraju mikro i male tvrtke (Ivanova, 2017). Pet sektora nije predstavljeno ravnomjerno budući da su djelatnosti F&B-ja slabo zastupljene.

Prema testu Kolmogorov-Smirnov distribucija odgovora ispitanika pokazala je statističko odstupanje od normalne distribucije. Zbog toga su u analizi podataka korišteni sljedeći neparametarski testovi: Wilcoxonov test sume rangova, Kruskal-Wallisov i χ2-test.

Tablica 1: Značajke ispitanika

a) Upitnik

Značajka	**Broj ispitanika**	**Udio (%)**
Sektor		
Destinacijski menadžment	31	23,0
Jelo i piće	8	5,9
Atrakcije	28	20,7
Turističke agencije i turoperatori	26	19,3
Smještaj	42	31,1
Veličina		
Velike (250 ili više zaposlenika)	10	7,4
Srednje (100-249 zaposlenika)	10	7,4
Male (10-99 zaposlenika)	54	40,0
Mikro (manje od 10 zaposlenika)	58	43,0
Pojedinci ili rad u nepunom radnom vremenu	3	2,2
Ukupno	**135**	**100**

to the questionnaire to their members. Industry contacts were utilised as well. For the interviews, the researchers applied purposive sampling and approached organisations with diverse characteristics (sector, size) to receive responses from diverse perspectives.

For Bulgaria the final sample consists of 135 responses to the quantitative search and 16 interviews, resulting from a combination of purposive, self-selection and convenience sampling. The respondents' profile is presented in Table 1. The sample reflects the very fragmented tourism industry in Bulgaria, where micro and small companies dominate the market (Ivanova, 2017). The five subsectors are not evenly represented because F&B companies are underrepresented.

The Kolmogorov-Smirnov test showed that the distribution of respondents' answers was statistically different from normal. That is why the non-parametric Wilcoxon signed ranks test, Kruskal-Wallis test and χ2-test were used for data analysis.

Table 1: Respondents' characteristics

a) Questionnaire

Characteristic	**Number of respondents**	**Share (%)**
Sector		
Destination management	31	23.0
F&B	8	5.9
Visitor attractions	28	20.7
Travel agents and tour operators	26	19.3
Accommodation	42	31.1
Size		
Large (250 or more employees)	10	7.4
Medium (100-249 employees)	10	7.4
Small (10-99 employees)	54	40.0
Micro (Less than 10 employees)	58	43.0
Individual or part-time activity	3	2.2
Total	**135**	**100**

b) Intervjui

Sektor	Broj ispitanika
Turoperatori i turističke agencije	3
Organizacije destinacijskog menadžmenta	0
Atrakcije	0
Smještaj	5
F&B	2
Edukatori	6
Ukupno	**16**

b) Interviews

Sector	Number of interviewees
Tour operators and travel agencies	3
Destination management organisations	0
Attractions	0
Accommodations	5
F&B companies	2
Training providers	6
Total	**16**

3. REZULTATI I RASPRAVA

3.1. Kvantitativni rezultati

3.1.1. Postojeća razina i očekivane buduće potrebe za digitalnim vještinama

Usporedbom vrednovanja između postojećih i budućih potreba digitalnih vještina prikazanoj u Tablici 2 vidljive su značajne razlike razina potreba za sve uvrštene digitalne vještine ($p<0.001$ za sve vrijednosti Wilcoxonovog testa sume rangova). Rezultati su također pokazali umjerenu pozitivnu i statistički značajnu korelaciju između postojećih i budućih potreba za vještinama (min $\varrho=0,356$, maks $\varrho=0,638$, svi $p<0,001$), što ukazuje na to da mišljenja ispitanika o postojećim razinama vještina u organizacijama mogu oblikovati njihovu percepciju o budućim potrebama za vještinama.

Sasvim je razumljivo da su u smislu postojeće ovladanosti najniže rangiranim vještinama, poput *umjetne inteligencije i robotike* (M=1,95), *unaprijeđene i virtualne stvarnosti* (M=1,97) i *vještine računalnog programiranja* (M=2,25), ali očekuje se njihov veliki porast u budućnosti (*vještine unaprijeđene stvarnosti i robotičke vještine* M=3.37, *vještine unaprijeđene i virtualne stvarnosti* M=3,51 *vještine računalnog*

3. RESULTS AND DISCUSSION

3.1. Quantitative results

3.1.1. Current level and anticipated future need for digital skills

The comparison between the evaluation of current and future digital skill needs is presented in Table 2. Results show high statistically significant differences between the current and future levels for all examined digital skills ($p<0.001$ for all Wilcoxon signed ranks test values). Additionally, the results show a moderate positive and statistically significant correlation between the current and future skills needs (min $\varrho=0.356$, max $\varrho=0.638$, all $p<0.001$), which means that respondents' opinions about the current skills level in their organisations may shape their perceptions about their future skills needs.

Understandably, the *Artificial Intelligence (AI) and robotic skills* (M=1.95), the *augmented (AR) and virtual reality (VR) skills* (M=1.97), and *computer programming skills* (M=2.25) are the lowest-rated skills for their current availability but they are expected to grow much in the future (*AI and robotic skills* M=3.37, *AR and VR skills* M=3.51, and *computer programming skills* M=3.24). However, they will remain the

programiranja M=3.24). Te tri vještine će ipak ostati najmanje bitne. Ovi su rezultati u skladu onima dobivenim u Španjolskoj gdje su „trenutno najmanje bitne vještine također i najmanje bitne za buduće potrebe", tj. *računalno programiranje, unaprijeđena stvarnost i robotika* te *unaprijeđena i virtualna stvarnost* (Zaragoza-Sáez, Marco-Lajara i Ubeda-Garcia, 2022:112). Također, Adeiyinka-Ojo *et al*. (2020) tvrde da će za budućnost turizma ključne biti vještine umjetne inteligencije i robotičke vještine, kao i kompetencije korištenja virtualne i unaprijeđene stvarnosti.

Postotni jaz značajno varira, od 7,05% (*vještine korištenja operativnog sustava*) do 78,22% (*vještine korištenja unaprjeđene i virtualne stvarnosti*). Glavne vještine digitalne pismenosti (*korištenje operativnih sustava, MS Office-a,* i *podešavanje digitalne opreme*) prioritetne su vještine kako trenutno tako i ubuduće te najmanje odstupaju. Dakle, bugarski ispitanici traže osnovne digitalne vještine za rad u digitalnom okruženju, a u budućnosti očekuju istu razinu potreba za korištenjem popularnih softwerskih aplikacija kao i trenutačno.

Zanimljiv je rezultat trenutna razina digitalnih vještina koje se odnose na *mrežni marketing i komunikaciju* (M=3,52)*, društvene medije* (M=3,66) i *praćenje mrežnih osvrta* (M=3,39). Naime, te se vještine smatraju važnima za budućnost, što bi zahtijevalo značajna poboljšanja (apsolutni jaz u *mrežnom marketingu i komunikaciji*=0,882; apsolutni jaz u *društvenim medijima*=0,711 i apsolutni jaz u *praćenju mrežnih osvrta*=0,689). Rezultati ukazuju na proces demokratizacije socijalnih medija i digitalnog marketinga kao aktivnosti (Stelzner, 2019) koje rabe ne samo usko specijalizirani stručnjaci nego i djelatnici na uobičajenim poslovima (Carlisle, Ivanov i Dijkmans, 2021). Povrh toga, te su vještine najvažnije za prilagođavanje i odgovor na stalne promjene obrasca ponašanja potrošača (Di Gregorio *et al*., 2019).

three least important skills. The results are in line with the findings from Spain, where "the least important skills at present are also the least important ones for the future", i.e. *computer programming, AI and robotic skills,* and *the use of AR and VR* (Zaragoza-Sáez, Marco-Lajara and Ubeda-Garcia, 2022:112). Similarly, Adeiyinka-Ojo *et al*. (2020) insist that AI and robotic skills, and the skills to use VR and AR will be crucial for the future of tourism.

The percentage gap varies significantly from 7.05% (*operating system use skills*) to 78.22% (*skills to use AR and VR*). The key digital literacy skills regarding *dealing with operating systems, MS Office software skills* and *skills for adjusting digital equipment* are the top skills both for the current level and for the future needs and they have the lowest skills gaps. Hence, Bulgarian respondents appreciate the minimum basic digital skills for work in the digital environment, and in the future the skills to deal with the most popular software applications will be a must in the same way as they are now.

An interesting finding is the current level of digital skills related to *online marketing and communication* (M=3.52)*, social media* (M=3.66) and *monitoring online reviews* (M=3.39). They are perceived as important skills for the future as well that would require significant improvement (*online marketing and communication* absolute gap=0.882; *social media* absolute gap=0.711 and *monitoring online reviews* absolute gap=0.689). The results demonstrate the process of democratisation of social media and digital marketing as activities (Stelzner, 2019) that are implemented not only by narrow specialists but are demanded more of the regular positions too (Carlisle, Ivanov and Dijkmans, 2021). Moreover, such skills are of ultimate importance to address and adapt to the shifting consumer behaviour patterns (Di Gregorio *et al*., 2019).

Tablica 2: Trenutne i buduće potrebne razine osposobljenosti digitalnim vještinama

Digitalne vještine	Trenutna razina		Buduća razina		Apsolutni jaz (buduća razina– sadašnja razina)		Postotni jaz (apsolutni jaz/trenutna razina)	Korelacija između postojećih i budućih razina	Wilcoonov test sume rangova (trenutna vs buduća razina)
	Srednja	*Standardna devijacija*	*Srednja*	*Standardna devijacija*	*Srednja*	*Standardna devijacija*			
Vještine korištenja operativnih sustava (npr., Windows)	4,10	0,818	4,39	0,828	0,289	0,700	7,05%	0,638***	-5,048***
Vještine korištenja Microsoft Office-a (npr., Word, Excel, Powerpoint)	4,04	0,888	4,39	0,838	0,348	0,840	8,61%	0,528***	-4,800***
Vještine primjene postupaka internetske sigurnosti	3,24	1,128	4,18	0,953	0,941	1,189	29,04%	0,356***	-7,159***
Vještine mrežnog marketinga i komunikacije	3,52	0,961	4,34	0,916	0,882	1,043	25,06%	0,383***	-7,090***
Vještine prilagodbe digitalnoj opremi (npr., povezanost Wi-Fi-jem, zvučni sustavi i video projektori	3,77	0,930	4,28	0,944	0,511	0,888	13,55%	0,550***	-6,225***
Vještine stolnog izdavaštva (za izradu brošura, kataloga, itd.)	3,33	1,221	4,00	1,086	0,674	1,158	20,24%	0,501***	-6,176***
Vještine razvoja računalnog programiranja	2,25	1,214	3,24	1,283	0,985	1,252	43,78%	0,498***	-7,260***
Vještine razvijanja mrežnih stranica	2,35	1,260	3,47	1,309	1,119	1,282	47,62%	0,503***	-7,562***
Vještine korištenja društvenih medija	3,66	1,066	4,37	0,936	0,711	1,085	19,43%	0,419***	-6,571***
Vještine za praćenje mrežnih osvrta	3,39	1,179	4,08	1,079	0,689	1,075	20,32%	0,549***	-6,423***
Vještine analiziranja podataka, poslovnog obavještavanja, velikih podataka	2,89	1,201	3,84	1,141	0,948	1,115	32,80%	0,548***	-7,651***
Vještine korištenja umjetne inteligencije i robotike	1,95	1,088	3,37	1,342	1,422	1,341	72,92%	0,407***	-8,380***
Vještine koje se odnose na primjenu tehnologije digitalnog hardware-a (npr., unaprjeđena i virtualna stvarnost)	1,97	1,203	3,51	1,298	1,541	1,354	78,22%	0,416***	-8,555***

Bilješke: N=135; Razina značaja: ***p< 0.001; Kodiranje – 1 – nema vještina trenutno, 5-stručna

Table 2: Current level of proficiency and future required proficiency level of digital skills

Digital skills	Current level		Future level		Absolute gap (future level – current level)		Percentage gap (absolute gap/ Current level)	Correlation between current and future levels	Wilcoxon signed ranks test (current vs future level)
	Mean	*Standard deviation*	*Mean*	*Standard deviation*	*Mean*	*Standard deviation*			
Operating System use skills (e.g., Windows)	4.10	0.818	4.39	0.828	0.289	0.700	7.05%	0.638***	-5.048***
Microsoft Office skills (e.g., Word, Excel, Powerpoint)	4.04	0.888	4.39	0.838	0.348	0.840	8.61%	0.528***	-4.800***
Skills for implementing online safety procedures	3.24	1.128	4.18	0.953	0.941	1.189	29.04%	0.356***	-7.159***
Online marketing and communication skills	3.52	0.961	4.34	0.916	0.882	1.043	25.06%	0.383***	-7.090***
Skills to adjust digital equipment such as Wi-Fi connectivity, sound systems and video projectors	3.77	0.930	4.28	0.944	0.511	0.888	13.55%	0.550***	-6.225***
Desktop publishing skills (for designing brochures, catalogues, etc.)	3.33	1.221	4.00	1.086	0.674	1.158	20.24%	0.501***	-6.176***
Computer programming skills	2.25	1.214	3.24	1.283	0.985	1.252	43.78%	0.498***	-7.260***
Website development skills	2.35	1.260	3.47	1.309	1.119	1.282	47.62%	0.503***	-7.562***
Social media skills	3.66	1.066	4.37	0.936	0.711	1.085	19.43%	0.419***	-6.571***
Skills to monitor online reviews	3.39	1.179	4.08	1.079	0.689	1.075	20.32%	0.549***	-6.423***
Data analytics, business intelligence, big data skills	2.89	1.201	3.84	1.141	0.948	1.115	32.80%	0.548***	-7.651***
Artificial Intelligence (AI) and robotics skills	1.95	1.088	3.37	1.342	1.422	1.341	72.92%	0.407***	-8.380***
Skills related to applying digital hardware technologies, such as Augmented and Virtual Reality	1.97	1.203	3.51	1.298	1.541	1.354	78.22%	0.416***	-8.555***

Notes: N=135; Level of significance: ***p< 0.001; Coding – 1-no skills present, 5-expert

Detaljnija analiza kvantitativnih rezultata u pogledu sektora i veličine tvrtki obuhvaćenih u ispitivanju (Tablica 3) pokazuje da ni podsektor ni veličina ne utječu na potrebe i jaz, osim u rijetkim iznimkama budućih potreba za *Vještinama programiranja* ($\chi2$=9,582, p<0,05) i *vještinama umjetne inteligencije i robotike* ($\chi2$=11,420, p<0,05). Ovo ukazuje na činjenicu da se ispitanici u svim podsektorima slažu u stavu o trenutnom stanju i budućim potrebama za digitalnim vještinama.

A closer look at the quantitative results in terms of sector and size of the responding companies (Table 3) shows that neither the subsector nor size shape the skills needs and gaps, with the minor exceptions of the future needs of *Programming skills* ($\chi2$=9.582, p<0.05) and *AI and robotics skills* ($\chi2$=11.420, p<0.05). The implication is that respondents across all subsectors are uniform in their opinion on their current state and future needs for digital skills.

Tablica 3: Razlike među ispitanicima temeljene na sustavu turizma i veličini

Digitalne vještine	Kruskal-Wallis $\chi2$-test					
	Sadašnja razina		**Buduća razina**		**Apsolutni jaz**	
	Sektor	*Veličina*	*Sektor*	*Veličina*	*Sektor*	*Veličina*
Vještine korištenja operativnog sustava (npr., Windows)	6,375	3,113	4,172	2,651	8,681	6,765
Vještine korištenja Microsoft Officea (npr., Word, Excel, Powerpoint)	8,547	2,839	3,496	3,918	9,134	3,912
Vještine primjene postupaka internetske sigurnosti	5,383	0,091	4,584	1,594	2,343	1,285
Vještine mrežnog marketinga i komunikacije	3,386	0,629	6,792	1,633	2,204	0,956
Vještine prilagodbe digitalnoj opremi (npr., povezanost Wi-Fi-jem, zvučni sustavi i video projektori)	0,838	1,438	5,710	2,516	4,736	6,566
Vještine mikroizdavaštva (za izradu brošura, kataloga, itd.)	8,730	4,783	6,267	1,565	5,285	6,010
Vještine razvoja računalnog programiranja	7,519	5,768	9,582*	3,497	3,247	4,714
Vještine razvijanja mrežnih stranica	8,283	6,333	6,077	3,264	1,865	7,400
Vještine korištenja društvenih medija	4,166	2,511	2,732	2,460	6,725	7,610
Vještine za praćenje mrežnih osvrta	6,706	1,190	5,664	4,628	1,841	3,081
Vještine analiziranja podataka, poslovnog obavještavanja, velikih podataka	2,346	3,409	8,057	0,930	2,083	2,063
Vještine korištenja umjetne inteligencije i robotike	5,602	2,828	11,420*	4,114	5,209	3,817
Vještine koje se odnose na primjenu tehnologije digitalnog hardware-a (npr., unaprjeđena i virtualna realnost)	10,004	2,231	2,706	0,686	3,175	2,467

Bilješke: N=135; Razina značajnosti: *p<0,05; Mikro (manje od 10 zaposlenih) i pojedinac ili rad u nepunom radnom vremenu spojeni u jednu skupinu zbog malog broja ispitanika.

Table 3: Differences among respondents based on tourist sector and size

Digital skills	Kruskal-Wallis χ2-test					
	Current level		**Future level**		**Absolute gap**	
	Sector	*Size*	*Sector*	*Size*	*Sector*	*Size*
Operating System use skills (e.g., Windows)	6.375	3.113	4.172	2.651	8.681	6.765
Microsoft Office skills (e.g., Word, Excel, Powerpoint)	8.547	2.839	3.496	3.918	9.134	3.912
Skills for implementing online safety procedures	5.383	0.091	4.584	1.594	2.343	1.285
Online marketing and communication skills	3.386	0.629	6.792	1.633	2.204	0.956
Skills to adjust digital equipment such as Wi-Fi connectivity, sound systems and video projectors	0.838	1.438	5.710	2.516	4.736	6.566
Desktop publishing skills (for designing brochures, catalogues, etc.)	8.730	4.783	6.267	1.565	5.285	6.010
Computer programming skills	7.519	5.768	9.582*	3.497	3.247	4.714
Website development skills	8.283	6.333	6.077	3.264	1.865	7.400
Social media skills	4.166	2.511	2.732	2.460	6.725	7.610
Skills to monitor online reviews	6.706	1.190	5.664	4.628	1.841	3.081
Data analytics, business intelligence, big data skills	2.346	3.409	8.057	0.930	2.083	2.063
Artificial Intelligence (AI) and robotics skills	5.602	2.828	11.420*	4.114	5.209	3.817
Skills related to applying digital hardware technologies, such as Augmented and Virtual Reality	10.004	2.231	2.706	0.686	3.175	2.467

Notes: N=135; Level of significance: *p<0.05; Micro (Less than 10 employees) and Individual or part-time activity merged into one group due to the small number of respondents.

3.1.2. Osposobljavanje u digitalnim vještinama

Tema zadnjeg dijela upitnika bila je osposobljavanje u digitalnim vještinama koju su turistički djelatnici dobivali (Tablica 4). Većina je ispitanika očekivano odgovorila da se to osposobljavanje odvija na radnom mjestu (80%), ali je značajan broj njih (30, tj. 40%) izjavio da se educiraju i u internetskom okruženju – relativno novoj vrsti obuke koja sama po sebi zahtijeva određene digitalne vještine (Bulala, 2019). Zabrinjavajuće je da vrlo velik broj ispitanika nije dobio nikakvu obuku iz digitalnih vještina (60, tj. 44%), što se podudara i s rezultatima istraživanja u Walesu (Minor, 2019). Turistički djelatnici smatraju da se digitalna pismenost stječe formalnim obrazovanjem, a ne dodatnim osposobljavanjima. Ovu ideju također dijele i Infante-Moro, Infante-Moro i Lallardo-Pérez (2019) kada pozivaju na šire uvrštavanje digitalnih vještina u turističko obrazovanje.

3.1.2. Digital skills training

The last part of the questionnaire dealt with the digital skills training received by tourism employees (Table 4). Expectedly, most of the respondents reported that training happens on the job place (80%) but a considerable share (30, i.e. 40%) reported training in an online environment – a comparatively new type of education that requires certain digital skills itself (Bulala *et al*., 2019). An alerting fact is the very high number of respondents who had no training in digital skills at all (60, i.e. 44% of the sample) similar to the findings of Minor, Carlisle and Dixey (2019) about Wales. Tourism professionals consider digital literacy to be obtained during the process of education rather than through additional training. This idea is shared by Infante-Moro, Infante-Moro and Gallardo-Pérez (2019) who call for the wider incorporation of digital skills in tourism education.

Tablica 4: Osposobljavanje u digitalnim vještinama u turističkim i ugostiteljskim poduzećima

Značajka	**Bez ikakvog osposobljavanja**	**Osposobljavanje**										**χ2-test**
		Ukupan broj osposobljavanja	Osposobljavanje na radnom mjestu	Tečaj na internetu	Jedan dan osposobljavanja na lokaciji s vanjskim edukatorom	Nekoliko dana osposobljavanja na lokaciji s vanjskim edukatorom	Jedan dan osposobljavanja izvan lokacije s vanjskim edukatorom	Nekoliko dana osposobljavanja izvan lokacije s vanjskim edukatorom	Pripravništvo	Strukovno osposobljavanje	Visoko obrazovanje	
Sektor												
Destinacijski menadžment	**14**	**17**	12	10	1	1	1	3	1	4	0	χ2=30.789 df=32 p>0.05
F&B	**5**	**3**	2	0	0	0	1	0	0	1	0	
Atrakcije	**12**	**16**	14	5	3	2	1	1	0	2	1	
Turističke agencije i turoperatori	**11**	**15**	14	5	6	3	2	2	4	2	2	
Smještaj	**24**	**24**	18	10	4	5	2	2	0	1	3	
Veličina												
Velika (250 ili više zaposlenih)	**4**	**6**	4	4	1	1	0	1	0	1	1	χ2=17.808 df=32 p>0.05
Srednja (100-249 zaposlenih)	**4**	**6**	5	2	2	2	1	0	0	0	1	
Mala (10-99 zaposlenih)	**22**	**32**	26	11	4	3	4	3	0	5	2	
Mikro (manje od 10 zaposlenih)	**28**	**30**	24	12	7	5	2	4	5	4	2	
Individualan ili rad u nepunom radnom vremenu	**2**	**1**	1	1	0	0	0	0	0	0	0	
Total	**60**	**75**	**60**	**30**	**14**	**11**	**7**	**8**	**5**	**10**	**6**	

Bilješka: N=135

Table 4: Digital skills training provided by tourism and hospitality companies

Characteristic	None training provided	Training provided										$\chi 2$
		Total training provided	On the job training	Online course	One day of on-site training by an external provider	Several days of on-site training by an external provider	One day of off-site training by an external provider	Several days of off-site training by an external provider	Appren-ticeship	Voca-tional training	Higher educa-tion	
Sector												
Destination management	**14**	**17**	12	10	1	1	1	3	1	4	0	$\chi 2$=30.789 df=32 p>0.05
F&B	**5**	**3**	2	0	0	0	1	0	0	1	0	
Visitor attractions	**12**	**16**	14	5	3	2	1	1	0	2	1	
Travel agents and tour operators	**11**	**15**	14	5	6	3	2	2	4	2	2	
Accommodation	**24**	**24**	18	10	4	5	2	2	0	1	3	
Size												
Large (250 or more employees)	**4**	**6**	4	4	1	1	0	1	0	1	1	$\chi 2$=17.808 df=32 p>0.05
Medium (100-249 employees)	**4**	**6**	5	2	2	2	1	0	0	0	1	
Small (10-99 employees)	**22**	**32**	26	11	4	3	4	3	0	5	2	
Micro (Less than 10 employees)	**28**	**30**	24	12	7	5	2	4	5	4	2	
Individual or part-time activity	**2**	**1**	1	1	0	0	0	0	0	0	0	
Total	**60**	**75**	**60**	**30**	**14**	**11**	**7**	**8**	**5**	**10**	**6**	

Note: N=135

3.2. Kvalitativni rezultati

Kvalitativni rezultati sukladni su kvantitativnima, ali su ih produbili s više detalja. Djelatnici u području usluga smještaja naglasili su potrebe za sljedeće digitalne vještine: *opće računalne sposobnosti, rad u internetskim i Office programima, hotelski software, sigurnosni postupci na daljinu, software za analizu podataka,* itd. Odgovori pokazuju da ispitanici uviđaju potrebe za tehničkim vještinama (Carlisle, Ivanov i Dijkmans, 2021) kao i za *boljom povezanošću među zaposlenicima*. Ispitanici u djelatnosti hrane i pića također su izjavili da njihove potrebe za digitalnim vještinama nisu vezane za glavne poslove u kuhanju ili pripremanju hrane nego uglavnom za organizaciju, marketing i snabdijevanje proizvoda. Voditelji osposobljavanja i konzultanti istaknuli su sofisticiranije aktivnosti i bitne potrebe za digitalnim vještinama u njihovoj primjeni kao npr. *kibernetička sigurnost, umjetna inteligencija, tečnost u komunikaciji na daljinu, virtualna stvarnost, 3D tehnologija,* šira uporaba digitalnih i mobilnih uređaja te *korištenje specijaliziranih programa i aplikacija*. Također su istaknuli *vještinu rada s robotima,* iako se roboti u Bugarskoj vrlo rijetko koriste. Ipak, ograničena uporaba robota može se pripisati upravo nedostatku djelatnika koji imaju odgovarajuće digitalne vještine za njihovo upravljanje. To je u skladu s navodima da je jaz najveći u *robotič*kim vještinama, osim vještina *umjetne i virtualne stvarnosti* (Carlisle, Ivanov i Dijkmans, 2021).

Vezano uz osposobljavanje, ispitanici su se složili o potrebi češćih i usmjerenijih tečajeva, iako je jedan djelatnik turističke agencije razočarano primijetio: "*Na žalost, turistička poduzeća u Bugarskoj rijetko investiraju u poboljšanje digitalnih vještina svojih djelatnika, uglavnom zbog financijskih razloga"*. Kako većinu turističkih agencija u toj zemlji čine mikro-poduzeća s manje od 9 zaposlenih, ovo je sukladno tvrdnji da s veličinom poduzeća rastu i sredstva i vrijeme koji se odvajaju za osposobljavanje (Minor, Carlisle i Dixey, 2019).

3.2. Qualitative results

The qualitative results mirrored the quantitative results but provided more details and depth. The accommodation representatives stressed the digital skills needs for *general computer proficiency, work with internet and office programs, hotel software, online security procedures, data analysis software,* etc. The responses show that interviewees have realised the need for pure technical skills (Carlisle, Ivanov and Dijkmans, 2021) but also a need for *better connectivity among employees*. In a similar vein, F&B interviewees reported that their digital skills needs are related not to the core tasks in cooking or catering, but mostly to the organisation, marketing and supply of the food products. Trainers and consultants pointed out more sophisticated activities and the relevant need for digital skills to implement them, e.g. *cyber security, artificial intelligence, fluency in online communication, virtual reality, 3D technology, wider use of digital and mobile devices,* and *using specialised programs and applications*. They also stressed the *skill of working with robots*, although the application of robots in Bulgaria is still very scarce. However, the limited use of robots might be attributed exactly to the lack of employees with relevant digital skills to operate them. The finding goes in line with the results of Carlisle, Ivanov and Dijkmans (2021) who also found the highest gap in *robotic skills*, together with *AR and VR skills*.

Regarding training**,** the interviewees agreed on the need for more regular and focused training. However, a respondent from a travel agency was disappointed and noted: "*Unfortunately, tourism companies in Bulgaria rarely invest funds to improve the digital skills of their employees, mainly for financial reasons"*. As most travel agencies in the country are micro-enterprises with less than 9 employees, this finding echoes the results of Minor, Carlisle and Dixey (2019) that the larger companies have more resources and time to invest in training in contrast to the smaller ones.

Zanimljivo je da se niti u jednom odgovoru ne spominje razlika u osposobljavanju digitalnim vještinama između hijerarhijskih razina (operativna, nadzorna i menadžerska). To znači da stjecanje digitalnih vještina nije ograničeno na određene pozicije u organizacijskoj strukturi turističkog poduzeća nego da su one potrebne svim zaposlenima.

4. ZAVRŠNE OPASKE I IMPLIKACIJE

Tehnologija je promijenila način života, raspon pažnje i način učenja kod potrošača internetske generacije (Combes, 2008). Današnji turistički djelatnici moraju raditi simultano u brojnim situacijama i razvijati digitalne vještine kako bi odgovorili na stalne promjene u digitaliziranom ugostiteljstvu. Odsutnost osnovne digitalne pismenosti kod turističkih djelatnika može smanjiti vrijednost i učinkovitost turističkih usluga i svakodnevno poslovanje turističkih tvrtki. Ova analiza pokazala je percepcije bugarskih turističkih menadžera o trenutnoj razini i budućim potrebama za digitalnim vještinama u njihovim tvrtkama. Rezultati pokazuju da je većina sudionika svjesna važnosti digitalne pismenosti i kompetencija u sljedećem desetljeću. Ispitanici su uvidjeli značaj tehnologije za budućnost turizma i potrebu za digitalnim vještinama nove generacije turističkih djelatnika. Ipak, rezultati su pokazali da u bugarskim turističkim kompanijama osposobljavanje u digitalnim vještinama ili ne postoji ili se rijetko provodi, većinom na radnom mjestu.

S teorijskog gledišta, rezultati jasno pokazuju da turistički podsektor i veličina organizacije ne utječu na oblikovanje trenutnih ili budućih razlika u digitalnim vještinama (Tablica 3). Bez obzira na sektor i veličinu, turističke organizacije imaju slične trenutne i očekivane buduće razine digitalnih vještina i razlike među njima. Međutim, u pogledu zelenih vještina u bugarskim turističkim organizacijama, Ivanova, Ivanov i Petkova (2021)

Interestingly, none of the interviewees made a distinction regarding digital skills training needs among the hierarchal levels (operational, supervisory, and managerial). This means that obtaining digital skills is not limited to a certain job position in the tourism company's organisational structure but they are necessary for all employees.

4. CONCLUDING REMARKS AND IMPLICATIONS

Technologies have changed the lifestyle, attention span and learning style of the customers from the "Next generation" (Combes, 2008). Today, tourism employees have to deal with multiple situations simultaneously and develop digital skills to address the ever-changing digitalised hospitality. The lack of basic digital literacy of tourism employees might hinder both the value and efficiency of tourism services and the daily operations of tourism companies. This study contributed to the body of knowledge by revealing Bulgarian tourism managers' perceptions of the current level and the future needs for digital skills in their companies. The results indicate that most of the participants are fully aware of the importance of digital literacy and competencies in the next decade. The respondents realised the importance of technologies for the future of the tourism industry and the need for digital skills of the next generation of tourism employees. However, the results revealed that digital skills training in Bulgarian tourism companies is either missing or rarely implemented, in most cases only on the job place.

From a theoretical perspective, the results clearly indicate that the tourism subsector and the size of the organisations play no role in shaping the current or the future digital skills gaps (Table 3). Regardless of their sector and size, tourism organisations have similar current and expected future digital skills levels and gaps between them. In contrast, in the context of green skills of

utvrdili su više razine trenutnih vještina i onih ubuduće potrebnih u djelatnosti F&B-ja u usporedbi s drugim podsektorima, iako takve razlike nisu primijećene za digitalne vještine na istom uzorku. Stoga, s menadžerskog gledišta, turističke organizacije u Bugarskoj dijele iste probleme koji zahtijevaju slična rješenja u smislu unaprjeđivanja digitalnih vještina djelatnika. Posljedično tomu, osposobljavanje u digitalnim vještinama ne mora se posebno prilagođavati podsektoru ili veličini turističkog društva nego se treba samo usredotočiti na pružanje učinkovite poduke za nadoknađivanje razlika u ovladanosti tim vještinama. Iz perspektive turističke politike, ova studija pokazuje da se digitalne vještine moraju uvrstiti u nastavne programe turizma i ugostiteljstva na preddiplomskim i diplomskim studijima kako bi se unaprijedile digitalne vještine budućih turističkih djelatnika u Bugarskoj (Infante-Moro, Infante-Moro i Lallardo-Pérez, 2019). Time će se potaknuti transformacija Bugarske u pametnu turističku destinaciju (Bulchand-Gidumal, 2022).

Ova studija ima nekoliko ograničenja koja upućuju na pravce budućih istraživanja. Unatoč naporu autora i angažiranja svojih kontakata u turizmu, broj odgovora u nekim podsektorima (npr. F&B) bio je manjkav. U budućim istraživanjima to bi se moglo ispraviti usmjeravanjem na djelatnike u djelatnosti F&B-ja i njima potrebne vještine. K tomu, mogle bi se istražiti potrebe za digitalnim vještinama na različitim radnim mjestima u turističkim organizacijama. Konačno, u ispitivanje bi se mogli uključiti i neki drugi dionici, npr. obrazovne institucije, proizvođači digitalnih tehnologija i klijenti, kako bi se vrednovala i njihova gledišta.

Bulgarian tourism organisations, Ivanova, Ivanov and Petkova (2021) find that the F&B companies had higher current and required future skills compared to the other subsectors but such differences were not observed for the digital skills in the same sample. Therefore, from a managerial perspective, tourism organisations in the country share the same problems that require similar solutions in terms of upgrading the digital skills of employees. Thus, digital skills training providers do not need to put effort into adapting their offers based on the subsector or size of tourism companies; instead, they have to focus on delivering effective training to fill in the skills gaps. From a tourism policy perspective, the paper's findings show that digital skills must be incorporated into the tourism and hospitality undergraduate and graduate programmes at universities to improve the digital skills of future tourism employees in Bulgaria (Infante-Moro, Infante-Moro and Lallardo-Pérez, 2019). In that way, the country has a chance to upgrade the digital skills of tourism employees to support its transformation into a smart tourism destination (Bulchand-Gidumal, 2022).

The study has a few limitations that open avenues for future research. Despite the authors' efforts and the utilisation of their industry contacts during data collection, the number of respondents from some subsectors (e.g. F&B) was small. Future research may try to correct this by focusing on the skills needs of F&B employees. Additionally, research could shed light on the digital skills needs for the different job positions in tourism companies. Furthermore, some other stakeholders could be included in the sample, e.g. educational institutions, producers of digital technologies, and also customers, to evaluate their perspectives as well.

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