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Digital Competences and Their Impact on Employability in the Tourism Sector—An Applied Study

Alexander Zuñiga-Collazos [1], Juan Miguel Velásquez Orozco [2] and Alexis Rojas-Ospina [1,3,*]

[1] Department of Administration and Organizations, Faculty of Administrative Sciences, Universidad del Valle, Cali 760042, Colombia; alexander.zuniga@correounivalle.edu.co
[2] Facultad de Ciencias Administrativas y Financieras, EAM University Institution, Armenia 630001, Colombia; jvelasquez@eam.edu.co
[3] Facultad de Ciencias Económicas y de la Administración, Escuela Nacional del Deporte, Cali 760042, Colombia
* Correspondence: rojas.alexis@correounivalle.edu.co or alexisrojas@endeporte.edu.co; Tel.: +57-3178871702

Abstract

Digital competences (DC) are vital for improving employability, especially in tourism, where adapting to technology and communicating effectively are key. Proficiency in digital tools and a second language (SL) significantly enhances organizational performance and competitiveness, supporting sustainable development and innovation in dynamic business environments. This study explores the causal link between digital competences and employability dimensions, including second-language skills, in SMEs within the tourism sector in Quindío and Valle del Cauca, Colombia. Using a quantitative approach, data from 114 employees were collected through a semi-structured survey and analyzed via partial least squares structural equation modelling (PLS-SEM) to determine significant relationships. The results reveal that digital competences significantly enhance technological management, occupational experience (OE), anticipation and optimization (AO), and personal flexibility (PF). These skills contribute to sustainable tourism by promoting adaptability, innovation, and inclusive employability. Additionally, second-language proficiency demonstrates strong explanatory power in communication-related aspects. The findings highlight the need for tourism enterprises to prioritize digital upskilling, integrate research and innovation into job functions, strengthen adaptability to organizational changes, and view second-language development as a strategic resource. This study offers valuable insights for designing targeted training strategies aligned with the sector's dynamic demands and advances the broader discourse on digital literacy in workforce development.

Keywords: digital competences; employability; tourism; second language; technology; communication; flexibility; productivity; sustainability

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1. Introduction

According to the UN Tourism World Tourism Barometer, 1.4 billion tourists travelled internationally in 2024, representing a 99% recovery from pre-pandemic levels. This marks an increase of 11% compared to 2023 [1]. However, the tourism sector in Latin America has yet to fully regain its contribution to Gross Domestic Product (GDP). In Colombia, the growth of both international and domestic tourists highlights the need to strengthen the sector's competitiveness, particularly in regions, such as Quindío and Valle del Cauca, which face structural and technological challenges.

Technology has emerged as a key factor in enhancing competitiveness within the tourism sector. The digitalization process, accelerated by the pandemic, has proven crucial for improving customer experience and optimizing internal processes [2]. In Colombia, platforms such as the Colombia Travel App and Colombia Map, launched in 2019, have enriched the tourism experience. However, many small and medium-sized tourism enterprises still struggle to integrate information and communication technologies (ICTs), underscoring the need for training in digital competencies and technological skills.

This scenario raises a key question: How does digital competence and proficiency in a second language impact the dimensions of employability in the tourism sector? Studying this relationship is essential for understanding how to enhance employee preparedness and strengthen the competitiveness of small and medium-sized enterprises in a challenging environment, particularly in Colombian regions that have been underexplored in previous research.

2. Literature Review

Employability is a dynamic concept that evolves over time and is influenced by various social factors. It is characterized by an individual's ability to generate job opportunities through the development of key competences, such as knowledge, skills, and abilities, which enable them to perform tasks effectively and adapt to constant changes in the labor market [3]. Additionally, one of the criteria used to assess employability is the remuneration obtained, as it reflects the worker's value in the market and their ability to access better opportunities [4]. Thus, employability is not only linked to technical competences but also to employees' ability to remain competitive in a rapidly changing work environment.

Moreover, employability is understood as an individual's ability to effectively utilize their skills in the labor market, which has a significant impact on their future position [4]. This concept is also closely linked to the sustainability of organizational competitiveness, as it depends on employees' ability to develop and maintain key competencies that ensure the company's long-term success [5]. Additionally, employability encompasses aspects related to work and career development, focusing on both human potential and work processes, which are essential for organizational performance and personal growth [6].

On the other hand, occupational experience refers to the set of knowledge and skills that a person acquires throughout their career, including metacognitive skills and the social recognition they receive from key stakeholders in their work environment. This concept is supported by research such as that of Finch et al. [7] which highlights the importance of experience in professional development. Thus, occupational experience is considered an essential factor in employability as it significantly contributes to the development of the competencies necessary for professional success. In this way, occupational experience encompasses both acquired skills and the value they add to an individual's career trajectory, which are key aspects of employability.

The dimension of anticipation and optimization, in turn, refers to employees' willingness to adapt to changes in their job roles, task content, and working conditions. Additionally, it is linked to their ability to seek optimal performance in their activities. This capacity can be developed by leveraging prior knowledge or through access to appropriate and coherent training that enables employees to perform their tasks efficiently [8]. Anticipation and optimization are therefore determining dimensions of professional success, as they drive adaptability to change and continuous improvement in job performance.

Furthermore, flexibility is defined as an organization's ability to adapt to external changes, which is essential for employability management and the recruitment process [9]. Understanding how employees incorporate flexibility into their work contexts is key to facilitating adaptation to change, generating benefits for both organizations and workers.

These benefits include cost reduction, reorientation of productive processes, and the implementation of effective measures in response to economic crises [10]. Thus, flexibility is a fundamental skill in a dynamic environment, contributing to the success and sustainability of businesses in times of change.

From a corporate sense (CS), companies must assume greater responsibility for improving their position and profitability, which involves integrating employees not only into their work roles but also into all areas affected by the organization's operations [11]. Adherence to principles and values has been shown to have a positive impact on employability, as indicated by the study of Alija, Aguado, and Martín [12]. It is crucial for employees to actively participate in corporate objectives and decision-making, extending their involvement in organizational civic behavior and their integration into diverse work teams [13]. Therefore, active employee participation enhances organizational culture while strengthening both employability and business performance.

Similarly, employability involves finding a balance (Eq) between current responsibilities, professional goals, and workers' personal aspirations, as they must navigate multiple work, personal, and professional development demands that are often difficult to measure or evaluate [14]. This balance is especially relevant when available data are scattered or difficult to identify. Moreover, individual control plays a fundamental role in employability, as the distinction between an internal and external locus of control is considered a key factor in achieving and maintaining employment [15]. This implies that employability depends on an individual's skills, competencies, and ability to effectively manage their responsibilities and expectations.

Nowadays, speaking a second language has become an increasingly essential skill within companies. The demand for foreign language competences in the workforce continues to grow [16]. Globalization is transforming societies and businesses while also affecting individuals' lives, particularly those who migrate. Additionally, technological advancements present new challenges in the assessment of second-language proficiency, as they require the adoption of appropriate cognitive processes to navigate digital environments [17]. Proficiency in a foreign language has been identified as a key transferable competence that enhances employability by significantly improving workers' ability to interact in globalized markets [18]. This underscores the importance of foreign languages as crucial tools for adapting to an increasingly interconnected labor market.

Moreover, some organizations are shifting their focus towards service-oriented strategies rather than product-based approaches, particularly in the digital sphere, with the primary goal of maintaining market competitiveness [19]. In this context, Information and Communication Technologies (ICTs) play a fundamental role, as they can significantly enhance both local knowledge bases and workforce competences in terms of adaptability and flexibility. Digital media, in turn, are characterized by their vast diversity and ubiquity, requiring employees to develop adequate skills to effectively manage a broad spectrum of options. These skills, essential for navigating digital environments, are referred to as digital competences [20]. The integration of digital competences has thus become a key factor for businesses to remain competitive and adapt to constant market changes.

Regarding digital competences and occupational experience, training in these skills has become a crucial factor in empowering employees in the contemporary workplace, particularly in the face of digital challenges [21]. Technologies focused on information, computing, communication, and connectivity have enabled companies to enhance both their competitiveness and efficiency [22], while also creating new forms of work and social interaction [23]. Within this framework, digital competences are increasingly relevant, becoming more integrated into learning content, which directly impacts employees' preparedness to perform their roles effectively. According to Deveci, Kolburan and Çoban [24]

structured digital environments foster the development of meaningful work experiences, thereby strengthening individuals' employability. Thus, the ability to adapt and develop digital skills is essential for employees to navigate the challenges of the digital era and improve their professional performance.

On the other hand, with respect to digital competences, anticipation, and optimization, although some uncertainties remain regarding the evolution of digital competences and their relationship with the restructuring of job responsibilities within companies [25] it is evident that the use of the Internet to merge information and solve problems has become a common practice among individuals. Those with a performance–goal orientation tend to seek self-improvement and outperform their peers to demonstrate competence and receive positive evaluations. In this context, digital skills play a crucial role in adapting to the work environment, as well as in anticipating and optimizing performance, leading to significant improvements in both employability and professional achievement [26]. Therefore, the ability to leverage digital tools becomes a key factor in optimizing productivity and maintaining market competitiveness.

Additionally, regarding the relationship between digital skills and personal flexibility, Joo et al. [27] highlight that proactivity is closely linked to the effective use of digital tools and creative abilities, with workplace flexibility being an essential factor for success. To foster active learning, individuals must go beyond the minimum required tasks, adopting a proactive attitude toward their responsibilities [28]. Likewise, problem-solving is enhanced by flexibility and efficiency, as the ability to explore multiple solutions through digital platforms is key to this process. In this sense, digital skills not only enhance adaptation to technological changes but also improve personal flexibility in response to shifting labor market demands [29]. Thus, the combination of these skills and flexibility enables individuals to efficiently manage transformations within organizations and the job market.

On another note, although research has been conducted on digital skills and their relationship with corporate culture, particularly regarding Information and Communication Technologies (ICTs) [30], less attention has been given to how corporate identity influences organizational behavior. Martínez-Caro et al. [31] argue that corporate identity regulates employee behaviors, creating participatory and connected environments that enhance collaboration. In the digital context, organizational culture adapts by integrating stable values and operational routines that facilitate cultural learning [32]. Furthermore, digital skills not only contribute to technological adaptation but also promote equity within organizations, fostering greater inclusion and participation [33].

Moreover, a connection is established between digital skills and balance, which, in the workplace, involves integrating current responsibilities, professional objectives, and the interests of both employees and employers, posing challenges in aligning these elements [34]. This concept encompasses the need to balance conflicting interests such as work obligations, personal life, and career development. According to Hofaidhllaoui [35], employability depends on a transparent exchange relationship between employer and employee, in which both parties balance their investments and benefits [36]. In this regard, soft skills, which fall under the dimension of balance, are highly valued by companies, as they enable employees to better manage these demands and achieve optimal performance in a complex work environment.

Lastly, concerning the relationship between digital competences and a second language, it is well established that digital skills play a fundamental role in education, work, and contemporary society. Language teachers utilize technology as a tool to enhance both the learning process and the acquisition of these competences [37]. The use of digital technologies optimizes personalized and efficient language teaching, facilitating better linguistic training [38]. Therefore, English has become a vital tool for communication across various

fields, including business, academia, trade, tourism, and international politics [39]. Digital linguistic competence involves mastering specialized vocabulary to interact with software and navigate the Internet [40]. This digital literacy, in turn, drives business globalization, as highlighted by Rangel and Peñalosa [41], making it a key factor in competitiveness and global development.

Based on the considerations presented by various authors, it is evident that digital competences have a significant impact on different aspects of professional and organizational performance. In particular, these skills are crucial for employees' occupational experience, performance optimization, and improvement of personal flexibility in response to changing work demands. Moreover, the relationship between digital skills and corporate culture, as well as their influence on balancing work responsibilities with personal goals, underscores their importance in technological adaptation and in fostering an inclusive and collaborative environment. Likewise, proficiency in digital competences contributes to an enhanced capacity for communication in a second language, particularly within the globalized business context.

Considering these aspects, and with the aim of analyzing the causal relationship between digital competences and employability dimensions—including second-language proficiency—in small and medium-sized enterprises within the tourism sector in the departments of Quindío and Valle del Cauca (Colombia), the following hypotheses are proposed to explore the relationships between digital competences and the aforementioned factors:

H1. *Digital competencies have a direct and positive impact on occupational experience.*

H2. *Digital skills have a direct and positive correlation with anticipation and optimization.*

H3. *Digital skills have a direct and positive relationship with personal flexibility.*

H4. *Digital skills have a direct and positive connection with corporate identity.*

H5. *Digital skills have a direct and positive relationship with balance.*

H6. *Digital skills have a direct and positive correlation with communication in a second language.*

3. Method

This study adopted an empirical approach with a quantitative orientation, employing Structural Equation Modeling (SEM), which is considered an ideal methodology for research in the field of services [42]. SEM was applied using the SmartPLS Version 4.0 software. As a second-generation multivariate analysis technique, SEM aims to theoretically validate causal models by identifying relationships between constructs and their corresponding indicators [43].

The sample consisted of 114 travel agencies and tour operators located in the departments of Quindío and Valle del Cauca, Colombia. One of the distinctive features of PLS-SEM is its ability to handle relatively small sample sizes. However, a study by Marcoulides and Saunders [44] suggests that the minimum sample size should be adjusted according to the number of relationships specified in the model, particularly those involving latent variables, as shown in Table 1:

Table 1. Minimum number of sample observations.

Minimum Number of Sample Observations	Number of Relationships in the Structural Model
52	2
59	3
65	4
70	5
75	6
80	7
84	8
88	9
91	10

Source: Marcoulides and Saunders (2006) [44].

A model with six relationships (H1, H2, H3, H4, H5, H6) can be observed, and, according to the Marcoulides and Saunders criterion, the minimum recommended sample size would be 75 observations, which is widely exceeded by the number of 114 observed elements. However, they were considered to complement the limitations, recommendations, and future studies.

The collected data were validated and analyzed using SEM via the SmartPLS-SEM Version 4.0 software, which, through the partial least squares method, demonstrated relationships between variables and their effects on each other.

Data were gathered through a survey, conducted between September 2022 and February 2023, targeting managers or legal representatives of travel agencies and tour operators in the departments under study. The survey consisted of closed polytomous questions, with 41 items (See Appendix A) grouped into six sections, corresponding to the constructs and variables included in the theoretical model presented in Figure 1.

Data handling was carried out with due care to avoid disclosing specific information about any entrepreneur or individual involved, thereby safeguarding personal data and preventing any legal issues or complications.

The privacy and confidentiality of participants' personal information were fully guaranteed. The Institución Universitaria EAM (Escuela de Administración y Mercadotecnia), in compliance with Law 1581 of 2012, Agreement 4 of 2012, its internal personal data processing policy (Resolution No. 047 of 28 June 2017), and other related regulations, ensured that the information would be stored under appropriate security conditions to prevent its alteration, loss, unauthorized access, consultation, or fraudulent use. Additionally, the institution confirmed that all activities conducted during the project's development adhered to formal research protocols, always ensuring proper levels of data protection.

The statistical data analysis employed a Partial Least Squares (PLS) model using SmartPLS Version 4.0 software. This technique, designed to estimate a system of equations, involves identifying relationships between constructs and their indicators (defining each construct's level and assessing its reliability), as well as illustrating relationships between independent and dependent variables through a bootstrapping process.

The first step in validating the measurement model is to assess the reliability of each factor, with a minimum expected value of 0.5 for each item [45]. In this model, no items were removed.

The second stage focuses on validating the scale used. For this purpose, quality criteria are applied to evaluate the internal consistency of each construct and its convergent validity. The assessment of the reflective model includes the use of Cronbach's alpha: Nunnally and Bernstein [46] recommend a minimum value of 0.70. For the Composite Reliability Index

(CRI), Fornell and Harker [47] suggest values above 0.70 for CRI and above 0.50 for the Average Variance Extracted (AVE).

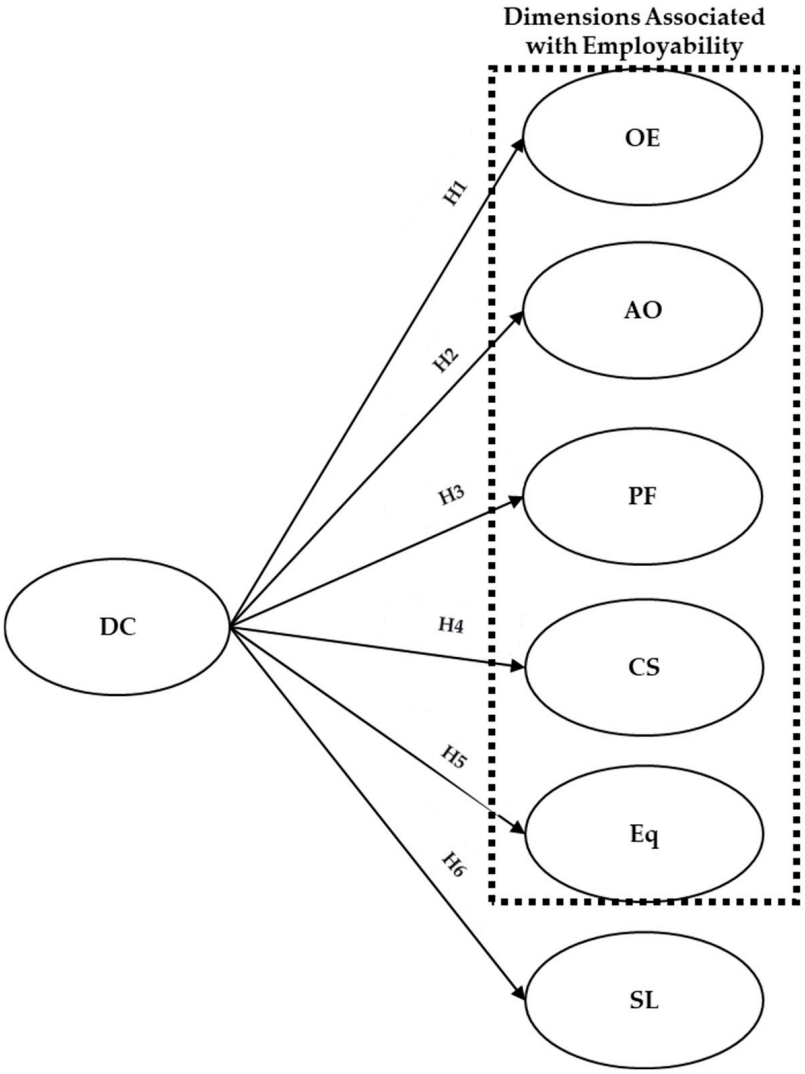


Figure 1. Theoretical conceptual model.

Finally, at this stage, the correlations proposed in the theoretical model, which form the basis for the hypotheses, are tested. This requires observing a resulting T statistic greater than 1.965 and a corresponding p value, with statistical significance established at a p value ≤ 0.05.

4. Results

The reliability indicators for the scale can be observed for the constructs; in this case, all indicators meet the reliability and convergent validity requirements.

Discriminant validity indicates that a given construct is distinct from others. To assess this type of validity, the criteria proposed by Fornell and Larcker [47] and the HTMT matrix [48] were employed. According to Fornell and Larcker (1981) [47], a construct demonstrates discriminant validity if its Average Variance Extracted (AVE) is greater than the squared correlations between that construct and the others. The Fornell and Larcker criteria confirmed discriminant validity (see Table 2).

Table 2. Reliability of the scale.

Variable	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Occupational experience	0.908	0.912	0.928	0.684
Anticipation and optimization	0.860	0.871	0.905	0.704
Personal flexibility	0.915	0.917	0.94	0.796
Corporate sense	0.879	0.881	0.912	0.674
Balance	0.855	0.867	0.902	0.697
Second language communication	0.900	0.906	0.930	0.769
Digital skills	0.890	0.893	0.919	0.696

Similarly, the Heterotrait–Monotrait (HTMT) ratio demonstrates discriminant validity when the ratio is not greater than 1 (Table 3).

Once the validity and reliability of the reflective model have been established, the structural model is subsequently assessed. The significance levels are determined using the Student's *t*-test obtained through a bootstrap procedure within the same statistical Version 4.0 software (SmartPLS). For this study, a relationship is considered significant when the T-value exceeds 1.965 and the *p*-value is less than 0.05. The Figure 2 presents the corresponding T-values. Next, the model with its correlation indicators between hypotheses is shown:

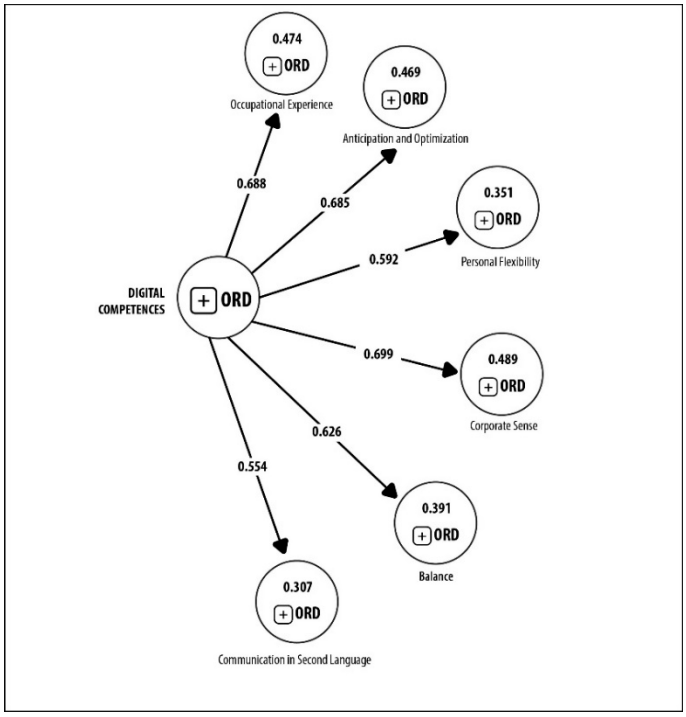


Figure 2. Solved model.

Table 4 presents the results obtained for the structural model. The correlation coefficient indicates the degree of linear dependence between two quantitative variables. The R^2 represents the percentage of variation in the response variable explained by its relationship with one or more predictor variables—that is, the extent to which the studied phenomenon is accounted for. The F^2 evaluates the contribution of each exogenous (independent) variable to the R^2, indicating the effect size of variables omitted from the model. The T value

and the *p* value (where the *p* value is defined as the probability of obtaining the observed statistical result assuming the null hypothesis is true) represent the significance level of the hypothesis. In this study, a hypothesis is considered significant and accepted if the T value is greater than 1.965 and the *p* value is less than 0.05.

Table 3. Fornell and Larcker criteria.

	Anticipation and Optimization	Digital Skills	Second Language Communication	Balance	Occupational Experience	Personal Flexibility	Corporate Sense
Anticipation and optimization	0.839						
Digital skills	0.685	0.834					
Second language communication	0.494	0.554	0.877				
Balance	0.821	0.626	0.559	0.835			
Occupational experience	0.856	0.688	0.475	0.807	0.827		
Personal flexibility	0.768	0.592	0.560	0.795	0.783	0.892	
Corporate sense	0.855	0.699	0.482	0.821	0.828	0.802	0.821

Table 4. Heterotrait–monotrait (HTMT).

	Anticipation and Optimization	Digital Skills	Second Language Communication	Balance	Occupational Experience	Personal Flexibility
Anticipation and optimization						
Digital skills	0.770					
Second language communication	0.560	0.613				
Balance	0.959	0.707	0.628			
Occupational experience	0.971	0.760	0.530	0.913		
Personal flexibility	0.869	0.649	0.620	0.895	0.859	
Corporate sense	0.980	0.786	0.536	0.944	0.921	0.890

The correlation coefficient expressed the degree of linear dependence between two quantitative variables. R^2 represented the degree to which the studied phenomenon was explained. Falk and Miller [49] recommended that R^2 values should be equal to or greater than 0.10 for the explained variance of a given endogenous construct to be considered adequate. Hair et al. [50] suggested that R^2 values of 0.75, 0.50, or 0.25 for endogenous latent variables could be interpreted as substantial, moderate, or weak, respectively. In this study, a moderate level of explanation was evidenced.

A variable in a structural model can be affected or influenced by different variables. The removal of an exogenous variable can impact the dependent variable. The F-squared represents the effect size ($\geq$0.02 is small; $\geq$0.15 is medium; $\geq$0.35 is large) [51].

In this study, it was found that six of the proposed hypotheses are significant (Table 5). Digital skills directly and positively influence occupational experience with a high effect, with a coefficient of 0.688. Secondly, digital skills have a positive and high influence on anticipation and optimization, with a coefficient of 0.685. Digital skills have a positive and moderate impact on staff flexibility, with a coefficient of 0.592. Digital skills have a positive and high impact on corporate sense, with a coefficient of 0.699. For the hypothesis regarding digital skills and their influence on balance, the coefficient is 0.626, showing a positive and

moderate-high effect. Finally, digital skills positively impact communication in the second language with a moderate effect of 0.554. It is worth highlighting the importance of the relationship with the second language, as this issue has been underexplored, empirically (see Table 6).

Table 5. R^2 and F^2 results.

Variable	R-Square	Relationship	f-Square
Occupational experience	0.474	Digital skills -> Occupational experience	0.900
Anticipation and optimization	0.469	Digital skills -> Anticipation and optimization	0.884
Personal flexibility	0.351	Digital skills -> Personal flexibility	0.540
Corporate sense	0.489	Digital skills -> Corporate sense	0.956
Balance	0.391	Digital skills -> Balance	0.643
Second language communication	0.307	Digital skills -> Second language comunication	0.443

Table 6. Results of the bootstrapping process.

Relations	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*p* Values	C/NC
Digital skills -> Occupational experience	0.688	0.687	0.075	9.184	0.000	C
Digital skills -> Anticipation and optimization	0.685	0.684	0.076	9.067	0.000	C
Digital skills -> Personal flexibility	0.592	0.588	0.098	6.073	0.000	C
Digital skills -> Corporate sense	0.699	0.694	0.077	9.106	0.000	C
Digital skills -> Balance	0.626	0.622	0.088	7.133	0.000	C
Digital skills -> Second language communication	0.554	0.549	0.097	5.693	0.000	C

Note. C = Corroborated hypothesis, NC = Uncorroborated hypothesis.

5. Discussion

The results obtained in this study provide key insights into the influence of digital skills on various dimensions of organizational behavior and employability. In the occupational experience construct, it was found that the ability to successfully complete work on time received the highest coefficient (0.858), highlighting the relevance of this skill in the current labor context, particularly considering the technological advancements that affect competitiveness and efficiency [22]. This finding is consistent with the research by Ferreira et al. [21], who emphasize the importance of digital training to empower employees and improve their professional performance.

In comparison with the staff flexibility construct, the variable with the highest coefficient, at 0.912, was the ability to adapt to organizational change when necessary, which aligns with the study by Joo et al. [27], demonstrating how employees' proactivity is linked to their creative ability to align with their organization. Regarding the next dimension, the objective of creating more participatory and connected work environments that reinforce the sense of collaboration, as noted by Martínez-Caro et al. [31], is reflected in the variable with the highest explanatory power in the corporate sense, that is, being competent to participate in forming a common vision of values and goals, with a coefficient of 0.838. In comparison with the balance construct, the item with the highest explanatory power

is the ability to achieve a balance between accomplishing one's own work objectives and supporting colleagues and managers, with a coefficient of 0.873, which concurs with [35] who argues that employability cannot exist without a transparent exchange relationship between employer and employee, in which both parties balance their investments and benefits (see also [36] regarding exchange theory).

In second-language communication, the variable with the greatest explanatory power is the ability to listen, not only to what the person is directly expressing but also to the feelings, ideas, or thoughts underlying what is being said, in a second language. With a coefficient of 0.898, this confirmed, as East and Slomp [17] suggest, that goods and services always improve people's lives, especially if they need to move to a different territory from their native one, which makes understanding messages essential. The variable with the least influence is the ability to produce complete, relevant, and acceptable oral messages in a second language. Finally, in comparison with digital skills, the variable with the highest explanatory power is managing information about technological and digital advancements related to one's work, closely related to the findings by Vial [19], who states that companies' main goal is to maintain competitiveness in the market through general and specialized software, with a coefficient of 0.904.

6. Conclusions

The purpose of this study was to analyze the causal relationship between digital skills and employability dimensions, including proficiency in a second language, in small and medium-sized enterprises in the tourism sector in the departments of Quindío and Valle del Cauca, Colombia. The results obtained statistically validate the six proposed hypotheses, showing that all evaluated items have a high external load, meaning that no items needed to be removed. Furthermore, convergent and discriminant validity is demonstrated through the tests and indicators analyzed.

The structural model shows high and moderate correlations in each of the hypotheses, which are statistically significant. High correlation effects were identified between digital skills and corporate sense, anticipation and optimization, and work experience.

Based on these findings, it is concluded that, to optimize employees' work experience, companies should prioritize the successful and timely completion of tasks, recognizing that this ability is fundamental for performance. Regarding anticipation, it is recommended to invest in research in key areas to achieve the proposed objectives. Personal flexibility is strengthened by promoting the ability to adapt to organizational changes. In terms of corporate sense, it is crucial to develop competencies that contribute to forming a shared vision of values and goals. Additionally, a balance should be sought between individual work objectives and mutual support among colleagues in team management. Moreover, this research shows that proficiency in a second language is optimized by developing skills to listen not only to direct expressions but also to the feelings, ideas, and thoughts underlying the communication.

It is recommended that managers and administrators create spaces for participation in forming a common vision of values and goals, as well as exploring related work areas to achieve the objective set by top management, as this study highlighted its influence on organizational competitiveness. Additionally, it is necessary for employees to successfully complete work on time, which was the variable with the highest explanatory power in Occupational Experience.

Although significant progress has been made in the study of digital competencies in the country analyzed, important conceptual limitations persist. Although key references on digital competencies and employability were incorporated, the literature review did not sufficiently integrate recent trends, such as artificial intelligence (AI) as an emerging dimen-

sion of these competencies. Recent studies show that technologies such as ChatGPT-3.5 y 4 are transforming key tourism practices [52,53] with effects on the emotional experience of human talent [54,55]. To enrich the theoretical base, future versions should include international frameworks, such as DigComp 2.2 and the OECD guidelines on AI skills, and delve deeper into the connection between digital transformation and employability in tourism.

The second limitation of this study lies in the exclusion of AI-related competencies from the study's conceptual and empirical framework, and is acknowledged as a key limitation. While this decision was informed by exploratory interviews—where tourism entrepreneurs did not report AI use as relevant—recent literature suggests growing adoption of AI applications such as chatbots and automated booking systems. This omission may constrain this study's explanatory scope and practical relevance. Future research should explicitly integrate AI-related competencies, considering digital maturity and contextual factors in emerging economies like Colombia, to better capture the evolving demands of workforce development in the tourism sector [53–55].

A third methodological limitation is related to the absence of predictive validity assessments, in particular the Stone-Geisser Q^2 statistic and the PLS predict procedure. Although this study prioritized a causal explanation through the coefficient of determination (R^2) [45], the incorporation of predictive metrics would have strengthened the model's ability to anticipate outcomes in new or unobserved scenarios [56]. This omission affects the external validity and practical usefulness of the findings, especially considering the objective of this study to guide human talent development, training programs and managerial decision making in the tourism sector.

Although the main focus of the research was of an explanatory nature, modeling digital competencies (DC) as the only exogenous latent construct, its direct effects on six endogenous latent constructs representing key dimensions of employability (OE, AO, PF, CS, Eq) and communication in a second language as an instrumental competence (SL) were analyzed in small and medium-sized tourism companies in the departments of Quindío and Valle del Cauca. The lack of predictive validation restricts the possibility of generalizing the results beyond the analyzed sample [56]. Recent studies highlight the strategic value of predictive tools to strengthen the connection between empirical results and the formulation of policies or organizational practices [52,53]. In this sense, future research should incorporate these procedures to reinforce the robustness of the model and ensure its applied relevance.

Given the rapid advancement of artificial intelligence, it is necessary to promote new research that analyzes how this technology can strengthen the digital skills required by tourism professionals, especially in contexts of high competitiveness and constant innovation. Furthermore, active digitalization is becoming widespread in all aspects of the economy, including the tourism sector [57], which is why studies in other areas of tourism and complementary sectors are recommended.

Finally, restrictions were identified associated with the geographical scope of the study, which was limited to a region with high tourism development. For future research, it is recommended to expand the territorial coverage, consider international contexts, and explore new relationships with variables such as soft skills, which are still poorly integrated into the analysis of technological competencies.

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Abbreviations

The following abbreviations are used in this manuscript:

DC	Digital competences
OE	Occupational experience
AO	Anticipation and optimization
PF	Personal flexibility
CS	Corporate sense
Eq	Balance
SL	Second language

Appendix A

The information collection instrument used is presented below, with the respective study variables.

The questions should be answered considering the characteristics you would like in an employee for your company and are rated as: Very important, Important, Moderately important, Of little importance, and Unimportant, with Unimportant being the lowest with a value of 1 and Very important being the highest with a value of 5.

Dimension	Item	Rate				
Occupational Experience (OC)	Competent to perform work accurately and with few errors.	1	2	3	4	5
	Ability to make quick decisions regarding the work approach.	1	2	3	4	5
	Ability to perform work independently.	1	2	3	4	5
	Ability to be of practical help to colleagues at work.	1	2	3	4	5
	Competent in their abilities within their area of specialization.	1	2	3	4	5
	Ability to successfully complete work on time.	1	2	3	4	5

Dimension	Item	Rate				
Anticipation and Optimization (AO)	Ability to improve knowledge and skills that will be beneficial for the job.	1	2	3	4	5
	Ability to systematically correct weaknesses.	1	2	3	4	5
	Competent to research in the related areas of work to achieve the proposed objective.	1	2	3	4	5
	Ability to associate with the latest processes in the work domain.	1	2	3	4	5
Personal flexibility (PF)	Ability to adapt to changes in the workplace.	1	2	3	4	5
	Ability to adapt to organizational change, if necessary.	1	2	3	4	5
	Ability to quickly anticipate and take advantage of changes in the work environment.	1	2	3	4	5
	Ability to quickly anticipate and take advantage of changes in the sector.	1	2	3	4	5
Corporate sense (CS)	Sufficiency to achieve the mission of my organization/department.	1	2	3	4	5
	Ability to do a little more for the organization/department beyond direct responsibilities.	1	2	3	4	5
	Ability to support operational processes within the organization.	1	2	3	4	5
	Competent to participate in the formation of a common vision of values and goals.	1	2	3	4	5
	Ability to share experience and knowledge with others.	1	2	3	4	5
Balance (Eq)	Ability to handle work-related stress.	1	2	3	4	5
	Ability to balance work and private life.	1	2	3	4	5
	Ability to put forth work effort in proportion to what one receives in return (e.g., motivation-effort ratio).	1	2	3	4	5
	Skill in achieving balance between achieving one's own work goals and supporting colleagues.	1	2	3	4	5
Second language (SL)	Ability to understand what is read, both in reference to the meaning of the words that make up a text, and with respect to the overall understanding of the text itself in a second language.	1	2	3	4	5
	Ability to listen not only to what the person is expressing directly, but also to the feelings, ideas or thoughts that underlie what is being said, in a second language.	1	2	3	4	5
	Ability to express thoughts and ideas in writing in another language.	1	2	3	4	5
	Competent in producing complete, relevant and meaningful oral messages in speech in a second language.	1	2	3	4	5
Digital competences (DC)	Skill in handling specialized software.	1	2	3	4	5
	Skill in using generic office tools at work.	1	2	3	4	5
	Ability to quickly and efficiently use a PC or laptop.	1	2	3	4	5
	Manage information on technological and digital advances related to your work.	1	2	3	4	5
	Skill in managing social media for customer interaction.	1	2	3	4	5

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