Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego
Studies of the Industrial Geography Commission of the Polish Geographical Society

38(2) • 2024

ISSN 2080–1653
DOI 10.24917/20801653.382.4

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The mediating role of dynamic capability between sustainable development and competitive advantage in tourism enterprises in Henan Province (China)

Abstract: Objective: This study explores the structural relationships between sustainable development and competitive advantage in tourism enterprises, along with the mediating role of dynamic capability, especially following the impact of COVID-19. Design/Method/Approach: An online questionnaire survey was conducted to collect 430 valid primary data sets from middle and senior managers in Henan tourism enterprises. Covariance-based structural equation modeling was utilized to test the direct effect, while the bootstrap method was used for testing mediating effects. Findings: The results reveal that sustainable development has a significant impact on the competitive advantage of tourism enterprises from three sustainability dimensions: economic, environmental and social. Meanwhile, dynamic capabilities represented by adaptive, absorptive and innovative capacities play a mediating role between them. Conclusions/Recommendation: The reshaping of the tourism industry by COVID-19 requires practitioners to take dynamic capability seriously in an uncertain environment. The higher demand for sustainability from tourists after the pandemic also suggests that improvements are a viable way for tourism enterprises to restore and cultivate competitive advantage. Originality/Value: This study focuses on public health emergencies which are scarce in tourism crisis research (Duan et al., 2021). In addition, it is designed to help managers identify elements that can be used as internal drivers (Wang, 2021) showing how firms can incorporate sustainable development into strategic management, as this is still lacking (Zhang et al., 2020) in practice.

Keywords: competitive advantage; dynamic capability; sustainable development; tourism enterprises

Received: 28 February 2024
Accepted: 7 June 2024

Suggested citation:
Wu, Y., Hizam-Hanafiah M., Zhang, Y. (2024) The mediating role of dynamic capability between sustainable development and competitive advantage in tourism enterprises in Henan Province (China). *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego* [*Studies of the Industrial Geography Commission of the Polish Geographical Society*], *38*(2), 69–94. doi: https://doi.org/10.24917/20801653.382.4

Introduction

Under the new development pattern of the Chinese "double cycle," tourism plays an irreplaceable role in optimizing the industrial structure, stimulating the endogenous power

of economic development, boosting consumer confidence, stimulating employment, driving industrial investment, and improving people's well-being (Yang et al., 2021). However, the tourism industry restarting following Coronavirus (COVID-19) is full of uncertainty and unpredictability (Zhang, 2023). The interlinked economic, socio-cultural, political and psychological impacts of COVID-19 have given rise to unanticipated trajectories instead of the historical trends that were expected, and the predictive function of previous explanatory models may not work (Sigala, 2020), and thus the pandemic will lead to resetting tourism research (Gretzel et al., 2020). Any enterprise that wants to survive must strive to create its unique competitive advantage (Fabrizio et al., 2021).

The most prominent change in China's tourist market following the epidemic is that consumers' awareness and attention to environmental protection and sustainable tourism development have significantly increased. Tourists are more inclined to choose natural scenery, leisure vacations and historical and cultural tourism destinations (CTRI, CTBDJL, 2020) since these places can help tourists feel the preciousness of harmonious coexistence between man and nature (Xia, Feng, 2020), while getting a sustainable development experience for themselves and the environment. Therefore, coupled with the tourism industry's characteristics of being "green" and "smoke-free," and considering the increasing pursuit of sustainability (Yang, 2021), tourism enterprises should undertake environmental, economic and social responsibilities on the road to sustainable development. This may be a new chance for them to gain competitive advantages from the context of the epidemic (Parida, Wincent, 2019), and also raise expectations for development prospects in the tourism industry (Yang, 2021). Moreover, enterprises need flexible adaptive capacity, keen absorptive capacity and breakthrough innovative capacity, to have a stronger competitive advantage in the constantly changing market environment (Dyduch et al., 2021; Teece, 2020). These three kinds of capacity can be included under dynamic capability (Biedenbach, Müller, 2012; Wang, Ahmed, 2007). The purpose of this study is to examine the influence of sustainable development on the cultivation of competitive advantage and whether dynamic capability plays an intermediary role between them. The aim is to provide valuable insights to tourism enterprises to improve their competitiveness.

Literature review

Competitive advantage. Since the 1980s, with the development of competitive strategic management theory and enterprise management practice, the research focus of enterprise strategic management theory has gradually shifted to the competitive advantage of enterprises, especially through research on how to obtain and maintain the core competitiveness of enterprises (Zhang, Xie, 2012). Porter (1985) systematically examined the competitive advantage of enterprises and proposed that it comes from a lower cost or differentiation advantage compared with competitors. The former is not achieved by cutting costs for short-term advantage, it is a long-term, consistent, low-cost effort and through hard work, and the latter means that the products and services provided by an enterprise are unique in the industry. This is recognized by customers, and the price premium they are willing to pay exceeds the cost added by the company because of its uniqueness. After the epidemic, China's tourism enterprises are faced with dual challenges on both supply and demand sides, tourism, as an indispensable part of human spiritual life, may be suppressed but will not disappear, and this means that those tourism

enterprises that can gain obvious advantages and surpass their competitors will have better opportunities for survival and transformation (Zou et al., 2023).

Dynamic capability. Due to dynamic changes in the environment, the core competences formed at a certain point cannot be maintained for a long time. Dynamic capability is a kind of emerging and potentially comprehensive theory to explore new sources of competitive advantage in a dynamic environment (Fabrizio et al., 2021). Teece et al. (1997) put forward the concept of dynamic competence for the first time and regard it as the ability of an organization to reconfigure and reorganize resources/capacities in a dynamic environment to seize opportunities and deal with unfavorable conditions.

Most scholars tend to analyze and study dynamic capabilities from the perspective of multi-dimensional (Sharma, Martin, 2018; Wu, 2016) architecture. Based on Teece's theory, Wang and Ahmed (2007), and Biedenbach and Müller (2012), further divide dynamic capability into three capacities: adaptive, absorptive and innovative. Among them, adaptive capacity reflects an enterprise's ability to be flexible in its strategy, reallocate resources and adjust its behavior to quickly match the changing environment. Absorptive capacity refers to the ability of an enterprise to identify external valuable information and absorb and utilize this external knowledge through the learning process (Martinkenaite, Breunig, 2016; Biedenbach, Müller, 2012; Lane et al., 2006). Innovative capacities are the guarantee for the enterprise to complete an innovation strategy (Akman, Yilmaz, 2019), reflect its ability to develop new products and new markets, and is the performance of the enterprise's innovative behavior (Wang, Ahmed, 2007).

Although research on the relationship between dynamic capability and competitive advantage is fruitful, there are many divergences. Many scholars support dynamic capability having a direct positive impact on the competitive advantage of enterprises (Ali et al., 2020; Vu, 2020), but some scholars believe that dynamic capability does not necessarily have a positive effect. The empirical results of the literature show that the relationship between dynamic capability and competitive advantage, as two influencing mechanisms, is still in a "black box" state, since dynamic capability does not exhibit the heterogeneity attributes and may cause enterprises to bear important opportunity costs as a resource invested by enterprise (Jiao et al., 2021).

Sustainable development. The sustainable development of enterprises should be understood as a broad concept from ecological, social and economic contexts (Haanaes, 2016) as it covers all issues related to the role of business in society and the natural environment (Xue, Chen, 2021). Economic sustainability is mainly achieved by improving the effectiveness and efficiency of services and products, structural changes on a broader scale such as market competition or concentration, and economic development; social sustainability is achieved through corporate social responsibility behaviors, including enhancing social welfare and promoting more harmony and a healthy social environment, as well as covering interrelationships with consumer psychology and cultures, a general social change which results in transforming collective and individual social identities. The main way to achieve environmental sustainability is to carry out management through cooperation, as well as promoting environmental awareness and resource use efficiency (Gössling, 2017) to achieve the purpose of improving the ecological environment (Xie et al., 2019). Integrating and balancing the three dimensions, social, environmental and economic, while focusing on the long-term elements of business activities, are key features of sustainable development.

Sustainable development is the crystallization of long-term and profound reflection on the traditional development model (Guo, Chen, 2020; Zhang, Zhong, 2019). Tourism sustainability is essential for socioeconomic prosperity and the progress of the tourism industry. In such a service-driven sector, research related to sustainability is becoming an increasingly vital area, and after COVID-19, this trend has become more apparent (Shao, Shen, 2020). However, under the guidance of economic development, the expansion of tourism in many countries is accompanied by a large quantity of resource consumption and the generation of non-recyclable garbage, resulting in the destruction and degradation of the non-renewable environment (Xie et al., 2023). The claim that tourism is a 'smokeless' industry has been widely questioned, and environmental issues have become one of the biggest challenges to its sustainable development (Dalia et al., 2020).

Research design

Research hypotheses. The relationship between sustainable development and competitive advantage. Integrating and balancing the three dimensions, social, environmental and economic, while focusing on the long-term elements of business activities, are key features of sustainable development (Bintara et al., 2023). Sustainable environmental business activities can bring a competitive advantage in any given industry (Amoako, 2019). Enterprises investing in green behavior not only protect the quality of natural resources and reduce pollution, but also improve the product life cycle and achieve stronger economic performance while improving environmental performance (Chand et al., 2018). Organizational sustainability has been guiding managers' decision-making processes to generate competitive advantage (Batista, Francisco, 2018).

Economic sustainability can reduce environmental and operating costs (Zhang et al., 2020) through pollution prevention measures and environmentally friendly business activities (Font et al., 2016), or gain market advantages and take the lead in future environmental benefits through environmentally friendly product management (Zhou et al., 2018), to maximize value creation and improve global living standards (Islam et al., 2020). An organization that highlights long-term sustainability principles in its running and development can be regarded as a truly competitive tourism service provider (Gârdan et al., 2020). McKinsey suggests that as the first country to experience the various stages of COVID-19, consumers show a greater interest in environmentally friendly products (Ho et al., 2020). The global megatrend highlights the importance of developing a competitive advantage, that is, without affecting the community or biodiversity, using rich local natural resources to develop sustainable tourism which can reduce the density of tourists and promote sustainable practices for rational use of water and energy resources, and actions aimed at reducing carbon dioxide emissions (Atun et al., 2019; Chkalova et al., 2019). When a company's social responsibility efforts can be differentiated from non-profit organizations and are closely related to their core business, they can gain extra profit from social supporters of these behaviors (Kaul et al., 2018). Corporate social responsibility can create a good reputation for itself, thus gaining a competitive advantage over other companies (Zhang, Li, 2021). On the contrary, a lack of corporate social responsibility will cause dissatisfaction among stakeholders and reduce the possibility of stakeholders cooperating with enterprises, which is not conducive to the establishment of competitive

advantage for enterprises (Gruchmann et al., 2021). Based on the above analysis, this research considers the following hypotheses:

- H1A: Economic sustainability positively affects tourism enterprises' competitive advantage.
- H1B: Environmental sustainability positively affects tourism enterprises' competitive advantage.
- H1C: Social sustainability positively affects tourism enterprises' competitive advantage.

The relationship between sustainable development and dynamic capability. In response to the call for environmental protection and the requirements of sustainable development, some scholars have integrated the concept of sustainable development into the theory of dynamic capability and proposed that the combination can guide enterprises to adjust strategies according to the challenges of sustainable development and enhance organizational capacity to address sustainability issues (Leonidou et al., 2015).

Sustainable environmental adaptability helps enterprises to understand and master relevant sustainable development policies promptly in an uncertain dynamic environment, seize new opportunities for sustainable products or services, promote the evolution and transformation of enterprise capacity, and strengthen their sensitivity to and perception of industry changes (Qiu et al., 2020) while cultivating dynamic capabilities for sustainability (Wang et al., 2020). Companies need to have the ability to adapt to the environment faster than others to obtain lasting competitive advantage and sustainable performance (Dewi et al., 2020). The implementation of sustainable strategies by enterprises can promote management innovation, integrate various kinds of operational information, rapidly change information, sustain resources and capacity into the organization's development strategies and business processes. Thus effectively implementing, managing, coordinating and monitoring each sustainable operation link, while forming and building the enterprise's sustainable resource integration capacity (Loeser et al., 2017), improving the efficiency of enterprise resource allocation, enhancing the quality of resource reconstruction, and bringing environment-oriented dynamic capability to enterprises (Liu et al., 2018). This can greatly improve the sustainable dynamic capability of the enterprise (Li et al., 2019). Green innovation and integration capacity can help enterprises clearly understand the competitive strategies of external competitors, evaluate the specific path of environmental strategic transformation, and choose the most suitable method and path. Enterprises with strong learning abilities can quickly integrate external information into green knowledge and help companies create new knowledge (Tian, Wang, 2020). In the era of intensified changes in the market and the technological environment, companies need to continuously update their inherent knowledge systems and concepts, break through conventions and reintegrate internal and external resources for sustainable product and process innovation. Based on the above analysis, the following hypotheses are proposed:

- H2A: Sustainable development positively affects tourism enterprises' adaptive capacity.
- H2B: Sustainable development positively affects tourism enterprises' absorptive capacity.
- H2C: Sustainable development positively affects tourism enterprises' innovative capacity.

The relationship between dynamic capability and competitive advantage. As one of the most active research topics in the strategic management literature, dynamic capability helps companies achieve strategic renewal and facilitates rapid resource integration and allocation to obtain sustainable competitive advantages in a dynamic environment. Its positive effect on the competitive advantage of enterprises has been recognized by many scholars (Sijabat et al., 2021; Jiao et al., 2021; Nguyen, Khoa, 2020). It is a kind of emerging and potentially comprehensive theory to explore new sources of competitive advantage in a dynamic environment (Fabrizio et al., 2021).

In the context of China's transitional economy, the imperfect and rapid changes in the system and market make it difficult to balance the different strategies within the organization (Chen, Shan, 2018). Improving adaptive capacity can help the enterprise to actively change its behavior promptly to better adapt to the changing environment (Kump et al., 2019), challenging and thinking about tradition, management and authority, making decisions and shifting business focus faster than competitors (Dykes et al., 2018). Thus providing the basis for the continued quest to establish differentiation and hinder further simulation (Fainshmidt et al., 2018), to find an appropriate position in the external market (Jiao et al., 2021) and gain priority. As a critical dimension of dynamic capability, absorptive capacity is the key for enterprises to absorb valuable market knowledge and technical information into the organization's network (Rodriguez et al., 2020), internalize and apply it to the organization's products or services to help enterprises optimize resource efficiency promptly (Wu et al., 2020), overcome organizational inertia (Qin et al., 2019), improve production processes, and support the personalized experience of customers (Jiang, McCabe, 2021), to gain competitive advantage (Muhic, Bengtsson, 2019).

Innovative capacity is another important determinant of an enterprise's competitive advantage (Zang et al., 2021; Zhang, Xu, 2017; Zhang, Wang, 2017). Enterprises with strong innovative capacities have significant advantages in the speed of commercialization of technology and the introduction of new products or services (Zawislak et al., 2012), obtain market and customer support by providing differentiated products or services (Ireland, Webb, 2007), and then obtain excess returns. The ability to innovate can also help companies better respond to changing market conditions when it comes to creating new products and processes (Teece et al., 2016; Teece, 2018). It is key to improving managers' ability to generate and reproduce creative solutions (Somsing, Belbaly, 2017), which constitutes an important basis for enterprises to obtain a competitive advantage. Based on the above, the following hypotheses are put forward:

- H3A: Adaptive capacity positively affects tourism enterprises' competitive advantage.
- H3B: Absorptive capacity positively affects tourism enterprises' competitive advantage.
- H3C: Innovative capacity positively affects tourism enterprises' competitive advantage.

The mediating role of dynamic capability between sustainable development and competitive advantage. Sustainable dynamic capability is a high-level capacity to achieve the sustainable development of an enterprise. The green dynamic capability cultivated in the process of sustainable development practices enables enterprises to lower operating costs, effectively utilize raw materials, reduce pollutant emissions and improve cost

advantages. Enterprises use existing resources and knowledge to update and develop sustainable organizational capabilities to adapt to the complex external environment and ultimately build their competitive advantage (Lin, Chen, 2017).

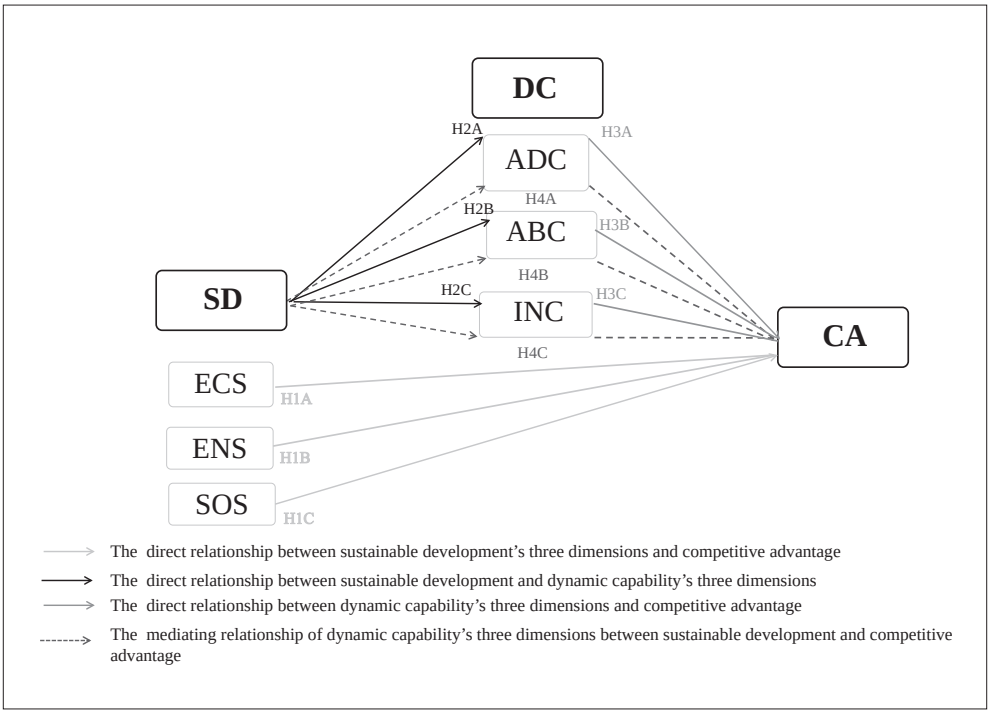
With the enhancement of the ability to adapt to the sustainable environment, enterprises can better understand and grasp policies related to sustainable development, sustainable technological changes and development trends in the industry, the environmental protection needs of customers, while quickly responding to changes in the market environment (Qiu et al., 2020) and turning sustainable resource integration into a sustainable competitive advantage (Liu et al., 2018). By incorporating the concept of environmental protection into the design of an enterprise's products or services, the allocation of internal and external resources can be optimized to be more in line with the market's environmental protection needs, thereby forming distinct differentiated advantages for products or services, improving environmental performance (Li et al., 2019) and enhancing the company's competitive advantage to create more sustainable value (Liu, 2021). Absorptive capacity can help organizations effectively integrate internal and external resources, integrate green innovation concepts into products and services, and gain advantages in a rapidly changing environment (Liu, 2021). Through the ability to learn environmental protection knowledge and technology within the organization, and through the organization's external resources to develop, absorb, transform and utilize new green knowledge, the organization's competitiveness can be strengthened and maintain a lasting competitive advantage (Liu, 2021). Green product innovation will also significantly affect corporate performance through green dynamic capacity (Pan, Tian, 2017). Improving resource productivity through technological innovation can reduce the cost of environmental protection. So the following sub-hypotheses can be presented:

- H4A: Adaptive capacity plays a mediating effect between sustainable development and tourism enterprises' competitive advantage.
- H4B: Absorptive capacity plays a mediating effect between sustainable development and tourism enterprises' competitive advantage.
- H4C: Innovative capacity plays a mediating effect between sustainable development and tourism enterprises' competitive advantage.

Research model. This study develops a conceptual model that summarizes all the hypotheses proposed based on previous evidence from the literature. Figure 1 shows the conceptual framework of cause and effect in this study.

Measurement items data collection. Henan Province is located in the Middle Eastern region of China, as shown in Figure 2, and has important geographical advantages and convenient transportation. Zhengzhou is its provincial capital. As one of the main birthplaces of the Chinese nation and civilization, Henan Province is known as a museum of Chinese history and culture (Lv, Chen, 2020), which means it holds large and unique tourism resources and attractions. In this study, the tourism enterprises within Henan Province that have survived after COVID-19 and hope to cultivate new competitive advantage form the statistical population. The sample frame contains three types of tourism enterprise: starred hotels, travel agencies and high level scenic locations. According to the 2021 Chinese Cultural Relics and Tourism Statistical Yearbook (2021), the statistical data for the three enterprise categories are shown in Table 1.

Figure 1. Conceptual Framework for this study



Source: authors

Figure 2. Map of China and the Location of Henan Province

Source: https://zhidao.baidu.com/question/327573140628567765.html (access: 12.02.2024)

Table 1. Statistics for the three categories of tourism enterprises in Henan in 2020

Items	Starred hotels	Travel agencies	High level scenic locations
Quantity	344	1166	580

Source: authors

According to the following formula:

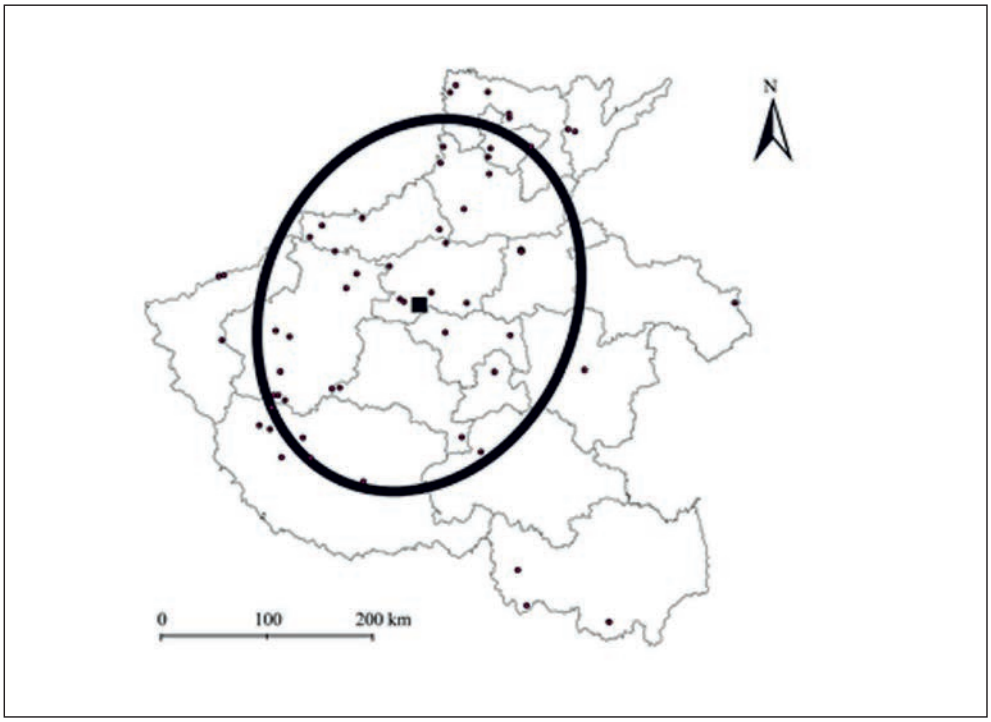
$$n = \frac{Z^2 p(1-p)}{e^2}$$

The study takes a 95% confidence level, and if defaulting to 5% of *e*, then *n* is 384.16. The adjusted sample size is 324.64, which means that the researchers should collect at least 325 questionnaires to get reliable conclusions with an error of 5%.

The respondents are middle or high-level managers in the sample tourism enterprises in Henan Province, with at least five years of work experience in the tourism industry. Since this period means they experienced COVID-19 they urgently hope to cultivate new competitive advantages to seek new development opportunities (Sun, 2020b). The questionnaire contains two parts, the first contains scales related to variables and their dimensions, with a five-point Likert scale being utilized. The competitive advantage dimensions proposed by Yang (2015) and Dong and Zhou (2015), include seven questions across two dimensions: low-cost advantage and differentiation advantage. The three dimensions of dynamic capability for adaptive capacity, containing four questions referenced by Gibson and Birkinshaw (2004), Ma et al. (2009) and Zhou and Li (2010); five questions for absorptive capacity following Liao et al. (2007) and Chen et al. (2009); while innovative capacity referenced by Calantonea et al. (2002) contains five questions. The sustainable development scales based on Tian and Wang (2019) contain a total of 17 questions and are divided into three sustainability dimensions: economic, social and environmental. The second part of the questionnaire is about the respondents' demographic characteristics, including information about demographics and the enterprises they work for.

Data collection. To maximize the coverage of respondents from different regions of Henan Province, and tobreak down time and space constraints, the questionnaires in this study were distributed online through the Chinese professional platform, Questionnaire Star, to conduct editing, distribution and recycling. The survey lasted for three months, and 485 questionnaires were distributed to all cities in Henan Province and the distribution of tourism enterprises is shown in Figure 3. It can be seen that the survey was distributed in different cities and regions of the province and is relatively balanced, but most are concentrated in the northwest of the province. Excluding all questions completed within three minutes, having more than 10 consecutive questions with the same answer, or with extreme or contradictory answers since these are considered to affect the quality of the responses, 430 valid questionnaires were finally obtained.

Figure 3. Distribution of Tourism Enterprises in Henan Province



Source: https://www.hanspub.org/journal/PaperInformation?paperID=34273 (12.02.2024)

Empirical analysis

Demographic Profile. From Table 2, it can be concluded that on examining gender distribution, the proportion of men is greater. Those aged between 40–49 comprise 38.1% of the total, followed by the 30–39 age group, meaning that most current practitioners are middle-aged. The majority of the sample are middle or senior managers in tourism enterprises, which partly explains why they have higher levels of education as undergraduate level constitutes the most significant proportion. When considering the main business of the respondents' enterprises, tourism agencies, accommodation and tourist attractions are all covered with accommodation representing almost half. However, most of the tourism enterprises in this study are small (N=194) and medium-sized (N=172) according to "Statistics on the Classification of Large, Medium, Small, and Micro Enterprises (2017)." The proportion of Sino-foreign joint ventures is relatively low, showing that Henan's tourism industry, and even the local economy, are still insufficiently attracting foreign investment.

Assessment of measurement model. Cronbach's coefficient was utilized to test the reliability of the questionnaire, whether the variables met the reliability standard; and confirmatory factor analysis was applied to calculate the convergent and discriminant validity of each variable and further test the structural validity of the scale.

Table 2. Demographic profile for this study (N=430)

Items	n (%)	Items	n (%)
Gender		Enterprise main business	
Male	248 (57.7%)	Tourism agency	132 (30.7%)
Female	182 (42.3%)	Tourism accommodation	210 (48.8%)
Age		Tourist attractions	88 (20.5%)
Less than 29 years old	82 (19.1%)	Employees Number	
30–39 years old	162 (37.7%)	Less than 10 people	24 (5.6%)
40–49 years old	164 (38.1%)	10–99	194 (45.1%)
50–59 years old	18 (4.2%)	100–299	172 (40%)
60 years old and above	4 (0.9%)	300 and above	40 (9.3%)
Business experience		Enterprise asset size	
5–7 years	179 (41.6%)	Less than 1 million	90 (21%)
8–10 years	151 (35.1%)	1–2 million	112 (26%)
10 years and above	100 (23.3%)	2–5 million	150 (34.9%)
Position in the current enterprise		More than 5 million	78 (18.1%)
Founder	148 (34.4%)	Enterprise property	
Senior-level manager	166 (38.6%)	Listed company	65 (15.1%)
Middle-level manager	116 (27.0%)	State-owned business	118 (27.4%)
Educational background		Sino-foreign joint venture	34 (8%)
High school and below	10 (2.3%)	Private enterprise	188 (43.7%)
College	125 (29.1%)	Others	25 (5.8%)
Undergraduate	184 (42.8%)		
Master's degree and above	111 (25.8%)		

Source: authors

Reliability test. Table 3 indicates the scale's reliability test results. When Cronbach's α greater than 0.6, it means reliability is acceptable, the higher the better, and when between 0.8–0.9, it means that the reliability is ideal (DeVellis, Thorpe, 2021). All the variables and the dimensions for Cronbach's α are greater than 0.8, indicating that the questionnaire shows a high internal consistency.

Table 3. Reliability test result

Scales	Cronbach's Alpha	n of Items
Competitive advantage	0.853	7
LC	0.78	3
DA	0.83	4
Dynamic capability	0.927	14
ADC	0.87	4
ABC	0.881	5
INC	0.862	5
Sustainable development	0.918	17
ECS	0.86	5
SOS	0.883	5
ENS	0.882	7

Source: authors

Validity test. The construct validity test is divided into three steps: first, using exploratory factor analysis (EFA) to explore the dimensions of each scale; second, using confirmatory factor analysis (CFA) to test the consistency between the measurement variables and factor facets, and calculate the factor loadings for each test item; third, calculating the convergent validity and discriminant validity for each variable, to comprehensively judge whether the scale has good structural validity performance. EFA is conducted in the pilot test stage, and the KMO value and Bartlett's test are leveraged to judge whether it is suitable for factor analysis. The KMO value is between 0 and 1, the closer to 1, the more suitable it is; if it is less than 0.5, it means it is not suitable at all. If Bartlett's test probability value (p-value) is less than 0.05, the null hypothesis is rejected, it is statistically significant and suitable for factor analysis. Table 4 presents the EFA for each scale. The rationality of dimensionality is met, which suggests good questionnaire validity. CFA reflects the intrinsic relationship between observed and latent variables. The model fit indicators and standards (Wang et al., 2022) are shown in Table 5.

Table 4. EFA for each scale

Item	Component		
CA	1	2	
DA1	0.689		
DA2	0.796		
DA3	0.772		
DA4	0.783		
LCA1		0.785	
LCA2		0.891	
LCA3		0.858	
KMO	0.826		
Bartlett's Test of Sphericity	x^2= 498.266, *df*= 21, P<0.001		
Initial Eigenvalues	3.871	1.174	
Cumulative %	72.07%		
DA	1	2	3
INC1	0.823		
INC2	0.816		
INC3	0.801		
INC4	0.824		
INC5	0.801		
ABC1		0.717	
ABC2		0.788	
ABC3		0.775	
ABC4		0.829	
ABC5		0.766	
ADC1			0.63
ADC2			0.819
ADC3			0.756
ADC4			0.772
KMO	0.9		
Bartlett's Test of Sphericity	x^2= 1102.825, *df* = 91, P<0.001		

Initial Eigenvalues	6.003	2.477	1.213
Cumulative %	69.24%		
SD	1	2	3
ENS1	0.613		
ENS2	0.717		
ENS3	0.735		
ENS4	0.715		
ENS5	0.687		
ENS6	0.727		
ENS7	0.787		
SOS1		0.79	
SOS2		0.788	
SOS3		0.828	
SOS4		0.797	
SOS5		0.745	
ECS1			0.787
ECS2			0.722
ECS3			0.733
ECS4			0.649
ECS5			0.711
KMO	0.912		
Bartlett's Test of Sphericity	x^2 = 1350.49, *df*= 136, P<0.001		
Initial Eigenvalues	7.528	2.151	1.29
Cumulative %	64.52%		

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
Rotation converged in three iterations

Source: authors

Table 5. Range of model fit indicators

Items	Values			Fit standards
	Competitive advantage	Dynamic capability	Sustainable development	
RMSEA	0.021	0.029	0.010	<0.05 excellent <0.08 acceptable
GFI	0.99	0.967	0.968	>0.9
SRMR	0.019	0.028	0.026	<0.05
CMIN/DF(NC)	1.189	1.352	1.045	1<NC<3
NFI	0.987	0.970	0.967	>0.9
RFI	0.978	0.963	0.961	>0.9
IF	0.998	0.992	0.999	>0.9
TLI	0.997	0.990	0.998	>0.9
CFI	0.998	0.992	0.999	>0.9

Source: authors

After the model fit test, an additional examination of convergent validity and discriminant validity was conducted. This study employs factor-loading coefficients and the average extracted variance (AVE) values of variables to comprehensively assess the convergent validity of the scale. The assessment criteria are factor loading coefficient >0.5 and AVE value >0.5 (Nasution et al., 2020; Shrestha, 2021). Composite reliability (CR) values serve as an indicator to evaluate the structural reliability of the data, where a CR value>0.6 indicates good composite reliability (Nasution et al., 2020; Shrestha, 2021). The assessment of discriminant validity typically involves comparing the square root of AVE with inter-variable correlation coefficients. If the square root of AVE is greater than the inter-variable correlation coefficients, it indicates satisfactory discriminant validity among the variables. All the values are in the range of excellent to acceptable. Therefore, CFA models for all variables are a good fit and the models are acceptable. Table 6 displays the AVE and CR for the model.

Table 6. Analysis of the model's convergent validity and composite reliability for variables

Variable dimensions	Item	Estimate	AVE	CR
Competitive advantage				
LC	LCA1	0.715	0.543	0.78
	LCA2	0.704		
	LCA3	0.788		
DA	DA1	0.786	0.549	0.83
	DA2	0.726		
	DA3	0.738		
	DA4	0.713		
Dynamic capability				
ADC	ADC1	0.816	0.627	0.87
	ADC2	0.806		
	ADC3	0.773		
	ADC4	0.77		
ABC	ABC1	0.788	0.597	0.881
	ABC2	0.748		
	ABC3	0.783		
	ABC4	0.782		
	ABC5	0.762		
INC	INC1	0.783	0.556	0.862
	INC2	0.732		
	INC3	0.742		
	INC4	0.74		
	INC5	0.731		
Sustainable development				
ECS	ECS1	0.797	0.552	0.86
	ECS2	0.734		
	ECS3	0.722		
	ECS4	0.744		
	ECS5	0.715		
SOS	SOS1	0.812	0.602	0.883
	SOS2	0.757		

	SOS3	0.763		
	SOS4	0.77		
	SOS5	0.777		
ENS	ENS1	0.757	0.518	0.882
	ENS2	0.779		
	ENS3	0.733		
	ENS4	0.695		
	ENS5	0.675		
	ENS6	0.703		
	ENS7	0.69		

Source: authors

The models' discriminant validity is presented in Table 7, where the square root of the average extracted variance (AVE) values for the two-dimensional variables is greater than their inter-variable correlation coefficients. This indicates that the scale demonstrates good discriminant validity.

Table 7. Models' discriminant validity

Dimensions	LC	DA	ADC	ABC	INC	ECS	SOS	ENS
LC	0.737							
DA	0.711***	0.741						
ADC			0.792					
ABC			0.74 ***	0.773				
INC			0.732***	0.717***	0.746			
ECS						0.743		
SOS						0.594 ***	0.776	
ENS						0.528 ***	0.662***	0.72

Note: diagonal values are the square root of AVE for each dimension ***P<0.001

Source: authors

Assessment of structural model. The interrelationships between the variables will be examined through Pearson correlation analysis. Correlation ranges from -1.0 (which means a perfectly negative correlation) to +1.0 (which means a perfectly positive correlation). The closer to ± 1.0, the stronger the correlation, the closer to 0, the weaker (Hair et al., 2019). From the standard of Mohammed (2019), when the correlation value is lower than 0.3, it means it is weak, between 0.3 and 0.7 means moderate, while higher than 0.7 means strong. The results of this study are shown in Table 8, it can be concluded that both dynamic capability (r=0.635, P<0.01) and sustainability (r=0.581, P<0.01) exhibit significant positive correlations with competitive advantage. Additionally, sustainability (r=0.578, P<0.01) also demonstrates significant positive correlations with dynamic capability.

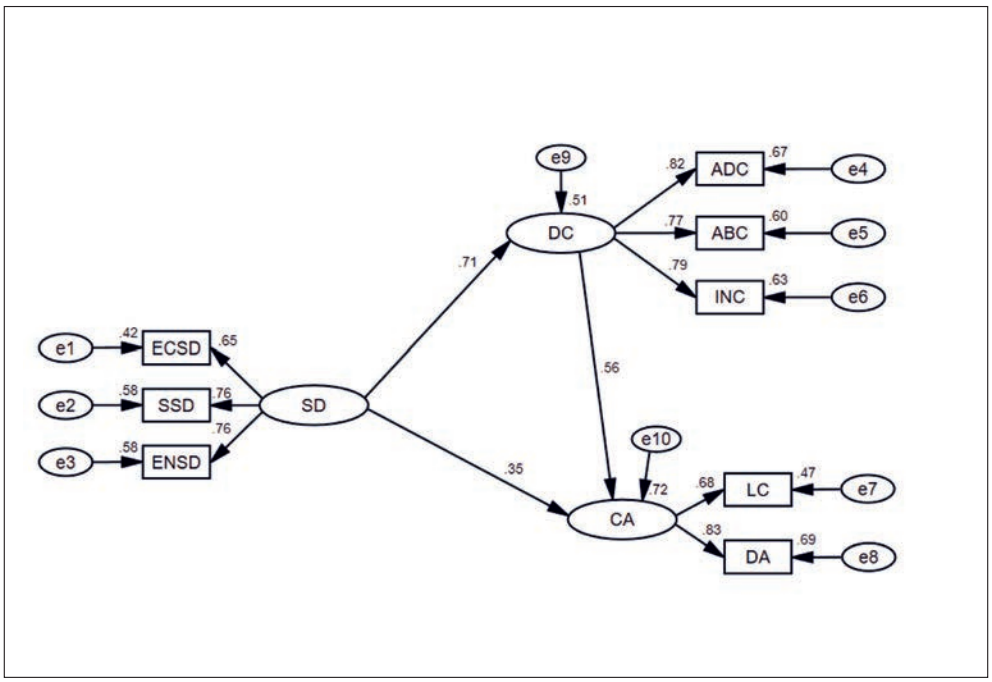
Table 8. Variable correlation test

Variable	CA	DC	SD
CA	1		
DC	0.635**	1	
SD	0.581**	0.578**	1

** Correlation is significant at the 0.01 level (2-tailed)

Source: authors

Figure 4. Overall Structure Model



Source: authors

Figure 4 shows the overall structural model in this study. Regarding model fit indicators, the RMSEA is 0.049<0.08, the GFI is 0.980>0.9, the SRMR is 0.027<0.05, the observed value of CMIN/DF is 2.044, falling between 1 and 3. The NFI value is 0.977, the RFI value is 0.962, the IFI value is 0.988, the TLI value is 0.980, and the CFI value is 0.988, all of which are above 0.9, meeting the criteria for a good fit, indicating a favorable fit for the structural model, so the model is acceptable.

Hypotheses testing. Direct effect test. Table 9 shows the hypothesis testing results of the overall model, and it can be concluded that direct effects can all be supported, along with the first three hypotheses. Table 10 summarizes path coefficient estimation and significance tests for all direct effects. Except for H3B, all the other hypotheses are supported.

The data from Table 9 further demonstrate that economic sustainable development (β=0.195, P<0.01) and social sustainable development (β=0.246, P<0.01) exhibit a relatively similar degree of influence on competitive advantage. Meanwhile, environmental

sustainable development has the most pronounced positive impact on competitive advantage (β=0.380, P<0.001), surpassing the other two by a substantial margin, which is also in line with the current perception in society. When it comes to sustainable development, the public generally first thinks of environmental protection, low carbon resource conservation and other topics related to environmental sustainability.

Table 9. Direct effect test

Route			Estimate (β)	S.E.	C.R.	P
SD	→	CA	0.350	0.092	4.404	***
SD	→	DC	0.712	0.076	11.225	***
DC	→	CA	0.565	0.076	7.167	***

***P<0.001

Source: authors

Table 10. Path coefficient estimation and significance test for all direct effects

Route			Estimate (β)	S.E.	C.R.	P	Inspection result
ECS	→	CA	0.195	0.052	2.846	0.004	H1A support
SOS	→	CA	0.246	0.046	3.086	0.002	H1B support
ENS	→	CA	0.380	0.061	4.789	***	H1C support
SD	→	ADC	0.851	0.215	9.122	***	H2A support
SD	→	ABC	0.838	0.238	9.007	***	H2B support
SD	→	INC	0.859	0.222	9.022	***	H2C support
ADC	→	CA	0.459	0.056	4.868	***	H3A support
ABC	→	CA	0.035	0.045	0.432	0.666	H3B not support
INC	→	CA	0.331	0.053	3.835	***	H3C support

***P<0.001; **P<0.01; *P<0.05

Source: authors

Mediating effect test. This study utilizes the bootstrap method to test the mediating effects. Following Igartua and Hayes' (2021) recommendation, bootstrap iterations are set at 5000, with a confidence level of 95%. In the results of mediating effect analysis, dynamic capability mediation between sustainability and competitive advantage, the total effect value is 0.603, with a 95% confidence interval of [0.523, 0.683], indicating a significant total effect. The indirect effect value is 0.27, with a 95% confidence interval of [0.200, 0.346], a significant indirect effect. The direct effect value is 0.333, with a 95% confidence interval of [0.245, 0.421], indicating a significant direct effect. This suggests that dynamic capability plays a partial role in mediation, with the proportion of the mediating effect being 45% and the proportion of the direct effect being 55%.

The mediating effects results of dynamic capability's three dimensions are listed in Table 11, which indicates that adaptive, absorptive and innovative capacities play a partial mediation role between sustainable development and competitive advantage.

Table 11. The mediating effect of Dynamic Capability on Sustainable Development and Competitive Advantage

Route	Effect type	Effect	S.E.	Bootstrap (95%)		Percent
				LLCI	ULCI	
SD→DC→CA	Total effect	0.603	0.041	0.523	0.683	/
	Indirect effect	0.270	0.037	0.200	0.346	45%
	Direct effect	0.333	0.045	0.245	0.421	55%
SD→ADC→CA	Total effect	0.603	0.041	0.523	0.683	/
	Indirect effect	0.210	0.032	0.150	0.275	35%
	Direct effect	0.393	0.043	0.309	0.476	65%
SD→ABC→CA	Total effect	0.603	0.041	0.523	0.683	/
	Indirect effect	0.150	0.029	0.097	0.209	25%
	Direct effect	0.453	0.044	0.366	0.540	75%
SD→INC→CA	Total effect	0.603	0.041	0.523	0.683	/
	Indirect effect	0.196	0.034	0.133	0.266	32%
	Direct effect	0.407	0.045	0.320	0.495	68%

Source: authors

Research findings

This study confirms that sustainable development has a positive impact on competitive advantage for tourism enterprises, and dynamic capability plays a mediating role between the two. Only the positive effect of absorptive capacity on competitive advantage is not supported. Environmental sustainability reflects a company's commitment to being environmentally responsible (Yu et al., 2022). Dynamic capability can facilitate an organization's survival during crisis times (Dyduch et al., 2021), especially for small and medium-sized enterprises, it can help them check the environment, perceive the market, and create and seize opportunities (Muhic, Bengtsson, 2019). However, absorptive capacity is not significant for competitive advantage, since it may face limitations and challenges in different contexts. Due to limited resources, enterprises often need to choose between different external sources of information and knowledge which can lead to a selective dilemma in which enterprises cannot effectively absorb and apply all valuable external resources, thus limiting their ability to cultivate competitive advantage (Liu, Hu, 2020). From the perspective of time cost, it usually takes a certain amount of time to absorb external resources (Zhou et al., 2023) and during this process, the market competition may change.

When talking about the relationship between sustainable development and competitive advantage, dynamic capability is considered to be a key intermediary factor (Wang, Qin, 2022). First, dynamic capability encourages continuous innovation to develop greener and more sustainable solutions and technologies. By continuously improving products, processes and services, companies can achieve sustainable development goals by reducing resource consumption and environmental impact (Zhou, Xu, 2022). This innovative spirit has won such a company the favor of environmentally conscious consumers and investors (Lv et al., 2021). Second, dynamic capability enables enterprises to optimize the use of resources and improve the efficiency of production and operations. By continuously improving processes and technologies, companies can reduce costs and waste, thereby increasing their competitive advantage on a sustainable basis.

This resource optimization helps companies maintain a robust position in a changing business environment (Tian, Wang, 2020). Finally, dynamic capability requires a flexible organizational culture that encourages employees to actively participate in innovation and continuous improvement. This culture encourages employees to come up with new sustainability ideas and promote those ideas within the organization. Businesses with a flexible culture are more likely to adapt to change and stay ahead of the curve when it comes to sustainability.

Contribution

In the context of the post-epidemic era, based on the theory of enterprise capacities and especially the dynamic capability perspective, this study provides three theoretical contributions to the field of strategic management. First, this study enriches research into sustainable development and its application in the field of strategic management through empirical analysis. Sustainable development is not only a moral responsibility but also a vital way for enterprises to gain a competitive advantage. Secondly, this study highlights that in a dynamic market environment, enterprises need to maintain competitiveness through continuous learning, adaptation and innovation. This study further deepens the application and understanding of dynamic capability theory in the specific context of the tourism industry. Finally, this study provides new perspectives and strategies for tourism companies to restore and enhance competitive advantages and expands the application of enterprise capacity theory in the specific context of the tourism industry. This not only provides tourism business managers with a theoretical basis for strategy formulation but also provides policymakers with policy recommendations to promote the sustainable development of the tourism industry.

Limitations and recommendations for further research

This research focuses on competitive advantage in the reconstruction of tourism enterprises after the outbreak of COVID-19 in 2020. The four years of research results are relatively limited in revealing the substantial transformation caused by COVID-19 to theory adoption, theme choice, paradigm transfer and research methods in the tourism research field (Huang, Wang, 2022). Moreover, there are still deficiencies in the formation of a sound theoretical system, with strong explanatory ability and future prediction. This research only references some articles in English, and the conclusions obtained may not be comprehensive enough. The data in this research are all time-sectional collected through questionnaires, which is a "static" analysis and difficult to grasp the mutual influence and changes in the trend of different variables in the vertical direction. The respondents in this study are only middle and senior managers of tourism enterprises in Henan Province. From the perspective of the region, the economic foundation, tourism industry development level, location advantage and tourism resources differ greatly among different provinces in China, so the general applicability of the research results may be limited by sampling survey in a single province. In addition, the failure to include front-line staff among the respondents is also a regret of this study. Front-line employees engage in specific operational work and are directly involved in the production, manufacturing and sales tasks of tourism products and services. They have direct contact and communication with

customers, and their perception of changes in customer demand, consumer behavior and travel experience is more realistic and timely.

Based on the existing limitations, further study can extend the collection of cross-sectional data to the collection of time series data, to more accurately understand the evolution law of enterprise competitive advantage through longitudinal data research and improve the confidence of the conclusions. Secondly, future research needs to further expand the scope of research, make comparisons between different provinces, and cover the decision-making level of tourism companies, management and front-line employees, and even tourists, to enrich the research level. Meanwhile, the researchers also need to keep track of the latest Chinese and English papers published on this topic, learn from the research results of others, and give the research more references and inspiration, to make its results more timely, objective and comprehensive.

Acknowledgment. The authors would like to thank the support of the staff and postgraduate students at IUKL, which included Mr. Idris, Zhou Jing and Zhao Ziyue who provided valuable inspiration for the idea of the paper. The authors gratefully acknowledge the support of our family members since they help take care of our families so that the authors can devote more time and energy to the research and writing of the paper.

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