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Impact of Digital Transformation on Human Resource Development in the Heritage Industry: From the Practice of Lang Son Province

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Abstract

In the context of the fourth industrial revolution and digital transformation spreading strongly, the Vietnamese cultural heritage sector is facing both opportunities and challenges in preserving and promoting heritage values associated with human resource development. This study aims to analyze the impact of digital transformation on human resource development in the heritage sector, from the practice of Lang Son province - a locality with rich heritage potential but limited in infrastructure and digital capacity. The survey results show that digital transformation has direct and indirect impacts through digital capacity on human resource development in the heritage sector. Digital capacity plays an important intermediary role, while organizational culture and local support policies have a positive regulatory impact, helping to amplify the effectiveness of digital transformation. The study affirms that the digital transformation process in the heritage sector is only truly effective when combined with a human development strategy, in an open organizational environment and appropriate support policies. From there, the article proposes policy implications to perfect the digital transformation strategy, develop digital capacity for human resources, build a culture of innovation and enhance the coordination role of local authorities, contributing to the sustainable development of the heritage industry in the digital age.

Keywords: Digital transformation; Digital capacity; Human resource development; Organizational culture; Local policy; Heritage industry; Lang Son.

1. INTRODUCTION

In the context of the Fourth Industrial Revolution taking place strongly, digital transformation has become an inevitable trend that has a profound impact on all socio-economic fields, including the cultural heritage industry. According to the study of Reis et al. (2018) published in the Journal of Business Research, digital transformation is not only the application of new technology but also a fundamental change in thinking, operating models and ways of organizing to create value. At the macro level, it is considered a key driving force to promote productivity, innovation and sustainable growth in the era of knowledge economy (Bharadwaj et al., 2013, MIS Quarterly).

For the cultural heritage sector, digital transformation is opening up opportunities to preserve, promote and disseminate heritage values through technologies such as 3D digitization, virtual reality, artificial intelligence or online tour platforms. Research by Kolyva et al. (2023) in Heritage Science emphasizes that digital transformation helps increase the accessibility, interactivity and attractiveness of heritage sites, especially in the post-pandemic period, when the demand for online experiences is increasing. However, this process also poses a great challenge in terms of human resources capacity, as the workforce in the industry needs to adapt to new technologies, digital data management skills and innovative thinking (Cortés-García et al., 2022, Sustainability).

Human resource development in the heritage industry therefore becomes a decisive factor to ensure the success of digital transformation. According to Bondarouk and Brewster (2016) in Human Resource Management Review, digital technology can only be truly effective when the organization has a suitable human resource strategy, focusing on digital capabilities, learning culture and innovation ability. In the same view, the study of Parry and Strohmeier (2014) in the International Journal of Human Resource Management argues that digital transformation creates “a restructuring of human resources” - where skills, training methods and working mechanisms need to be completely redesigned.

In the heritage industry, the relationship between digital transformation and human resource development is evident in the ability of staff to adapt to technology. According to research by Boland et al. (2023) in Information & Management, human resources in cultural and heritage organizations not only need digital literacy but also need creativity, digital storytelling and knowledge management skills to create new value for heritage.

This requires the human resource development strategy to go hand in hand with the organization's digital transformation strategy.

At the local level, especially in border or peripheral areas such as Lang Son province, digital transformation in the heritage sector is not only a tool for promoting culture but also a driving force for local economic development. According to the study by Rădulescu et al. (2024) on Sustainability, digital transformation in the heritage sector can contribute to sustainable development in peripheral areas by creating jobs, strengthening local capacity and encouraging innovation. However, the authors also warn that the lack of digital infrastructure, budget and human resources skills are the main barriers, causing the digital transformation process in this area to be slower than in urban centers.

In addition, according to the UNESCO report (2021) - Digital Transformation of Cultural and Creative Industries, Vietnam and developing countries are facing great challenges in improving the digital capacity of the cultural workforce. Especially in mountainous and border provinces, the heritage workforce is often limited in terms of technological skills, foreign language proficiency and training opportunities. This leads to an urgent need for research and human resource development policies associated with digital transformation in the heritage industry.

From the above analysis, it can be seen that the relationship between digital transformation and human resource development in the heritage industry is a topic that is both academic and has profound practical significance. While international studies have affirmed the importance of human resource capacity in digital transformation of heritage, in Vietnam, especially in localities such as Lang Son - where there is rich cultural heritage potential and a strategic position in border tourism - this issue has not been systematically surveyed and analyzed. Therefore, the study "Impact of digital transformation on human resource development in the heritage industry: From the practice of Lang Son province" aims to clarify aspects of this process, thereby proposing policy implications to improve the effectiveness of digital transformation and sustainable human resource development for the local heritage industry.

2. THEORETICAL BASIS

Digital transformation in the context of heritage industry development

Digital transformation is considered as the process of comprehensively integrating digital technology into all activities of the organization to fundamentally change the way of operation, create new value and improve operational efficiency (Reis et al., 2018). From a strategic perspective, Bharadwaj et al. (2013) argued that digital transformation is the shift from traditional information technology strategy to digital business strategy, in which technology plays a central role in driving innovation.

For the heritage sector, digital transformation is demonstrated through the digitization, storage, management and transmission of cultural and historical values through digital platforms, thereby expanding access and preserving heritage in a sustainable manner (Kolyva et al., 2023). According to research by Cortés-García et al. (2022), this process not only facilitates the preservation of tangible and intangible objects but also reshapes the model of heritage governance, communication and education. The application of technologies such as artificial intelligence, virtual reality and big data helps to recreate cultural spaces, connect heritage with communities, and form new innovative services in the fields of tourism and education (Boland et al., 2023).

However, digital transformation in the heritage sector is not only a matter of technology but also a process of organizational and human resource adaptation. Rădulescu et al. (2024) emphasize that, in peripheral areas, the implementation of digital transformation requires human resource development, otherwise it will lead to an imbalance between technology and implementation capacity. Therefore, human capacity is the center that determines the success of the heritage digitization process.

Human resource development in the digital age

Human resource development is understood as the process of improving the knowledge, skills, attitudes and creative abilities of employees to meet organizational goals and environmental changes (Werner & DeSimone, 2012). In the context of digital transformation, this concept is extended to the development of “digital capabilities” - including the ability to use technology, data thinking, digital communication and creativity in digital environments (Bondarouk & Brewster, 2016).

According to Parry and Strohmeier (2014), digital transformation in human resource management not only helps automate administrative processes but also improves data analysis and strategic decision-making capabilities. Human resources in today's organizations need to be oriented to develop according to the "lifelong learning" model,

where soft skills, creativity and the ability to adapt to technology become core requirements (Schwab, 2017).

In the heritage sector, human resource development is not only linked to professional conservation capacity but also directly related to technological capacity and cultural creative thinking. Kolyva et al. (2023) argue that heritage human resources need to be equipped with digital skills such as document digitization, multimedia content design and digital storytelling, in order to recreate heritage in a new context. On the contrary, the lack of digital skills is considered one of the main barriers preventing many heritage organizations from fully exploiting the potential of digital transformation (UNESCO, 2021).

The relationship between digital transformation and human resource development in the heritage industry

Digital transformation and human resource development have a reciprocal relationship, in which human capacity is both a prerequisite and a result of the digital transformation process. According to Bondarouk and Brewster (2016), technological change is only truly effective when organizations invest adequately in training, skills development and learning culture innovation. Cortés-García et al. (2022) point out that in heritage organizations, the implementation of digital technology requires a transformation in human capacity, including technological skills, creativity, data management and multidisciplinary collaboration.

Boland et al. (2023) added that, in the field of culture and heritage, digital transformation fundamentally changes the way people interact with cultural values. Human resources are no longer just “preservators” but become “creators” - actively retelling heritage stories using digital tools. Therefore, the process of human resource development needs to be seen as an inseparable part of the digital transformation strategy.

On the other hand, digital transformation also creates the impetus for developing new human resources. According to research by Rădulescu et al. (2024), heritage digitization projects have created a need to recruit new positions such as data engineers, digital content specialists or digital heritage administrators. These positions not only help maintain conservation activities but also expand the scope of socio-economic impact of the heritage sector. This is especially meaningful in localities such as Lang Son

province, where digital transformation can create more jobs, encourage learning and improve the quality of local human resources.

Proposed theoretical framework for the study

From the above international works, it is possible to propose a comprehensive theoretical framework to explain the relationship between digital transformation and human resource development in the heritage industry. Accordingly, digital transformation is considered the main influencing factor, including components: digital infrastructure, content digitization, application of new technology, data management and online interaction. These factors directly affect human resource development, expressed through three dimensions: digital capacity, creative capacity and innovation capacity at work.

This relationship may be moderated by organizational culture and local support policies. Parry and Strohmeier (2014) argue that organizations with a culture of learning and change readiness are more likely to implement new technologies and develop their human resources accordingly. At the same time, Rădulescu et al. (2024) demonstrate that local context - such as technological infrastructure, public investment levels and network connectivity - plays a decisive role in the success of digital transformation in the heritage sector.

This theoretical framework is suitable for application in the practical research of Lang Son province, where the digital transformation process in the field of culture and tourism is taking place but still faces challenges in human resources, infrastructure and policies. The study is expected to examine three main relationships:

1. Digital transformation positively affects human resource development in the heritage industry.

2. Digital capabilities are the intermediary between digital transformation and human resource development effectiveness.

3. Local policies and organizational culture moderate the impact of digital transformation on human resources.

The construction and verification of this model not only contributes to clarifying the theoretical basis but also brings practical value in planning human resource development policies for the heritage industry in border localities such as Lang Son.

3. RESEARCH METHODS

Approach

This study was conducted on the basis of quantitative approach combined with qualitative analysis to ensure the comprehensiveness and reliability of the results. According to Creswell (2014), mixed methods allow researchers to explore the depth of social phenomena through qualitative interviews, while measuring and testing the relationship between variables through quantitative surveys.

First, the qualitative phase was conducted to calibrate the scale and identify factors that are suitable for the heritage sector context in Lang Son province. The experts interviewed included managers at the Department of Culture, Sports and Tourism, museum directors, and leaders of typical cultural and historical relics. The qualitative results helped to complete the scale on digital transformation and human resource development in a way that is suitable for local realities.

The quantitative phase was conducted through a structured questionnaire survey, using a 5-level Likert scale (from 1 - Completely disagree to 5 - Completely agree). The survey subjects included employees, managers and workers in cultural heritage organizations, museums, and cultural tourism areas in Lang Son province. The collected data were processed using Smart PLS 4 software, suitable for models with mediating and moderating factors (Hair et al., 2021).

The research method chosen is deductive - interpretive, meaning that hypotheses are formed based on theory and tested with empirical data. This approach allows to assess the impact of digital transformation on human resource development in the heritage sector, while considering the mediating role of digital capacity and the moderating effect of organizational culture as well as local support policies.

Research model

Based on the theoretical foundation and previous studies (Bondarouk & Brewster, 2016; Cortés-García et al., 2022; Rădulescu et al., 2024), the proposed research model is built with the aim of testing the relationship between digital transformation and human resource development in the heritage industry, while determining the mediating role of human digital capacity and the moderating role of organizational culture and local support policies.

The research model is summarized as follows:

Digital transformation (X1) : includes elements such as technology infrastructure, content digitization, new technology application, and legacy data management (Kolyva et al., 2023).

Digital competency of human resources (M): demonstrates the ability to use technology, digital creativity, and innovative thinking (Bondarouk & Brewster, 2016).

Human resource development in the heritage industry (Y): is reflected through three aspects: improving professional skills, expanding career opportunities, and promoting creative learning (Werner & DeSimone, 2012).

Organizational culture (Z1): reflects the level of readiness for change, learning spirit and knowledge sharing in the organization (Parry & Strohmeier, 2014).

Local support policy (Z2): includes policies on digital infrastructure investment, human resource training and cultural preservation of provincial authorities (UNESCO, 2021).

The relationship between the variables is described in the following conceptual model:

Digital transformation (X1) → Digital capability (M) → Human resource development (Y)
Organizational culture (Z1) and Local support policy (Z2) moderate the relationship between digital transformation and human resource development.

Research hypothesis system

Based on the conceptual model, the research hypotheses are built as follows:

Hypothesis H1: Digital transformation has a positive impact on human resource development in the heritage industry.

Hypothesis H2: Digital transformation has a positive impact on digital competence of human resources in the heritage industry.

Hypothesis H3: Digital competence has a positive impact on human resource development in the heritage industry.

Hypothesis H4: Digital competence plays a mediating role in the relationship between digital transformation and human resource development in the heritage industry.

Hypothesis H5: Organizational culture moderates the relationship between digital transformation and human resource development in the heritage industry.

Hypothesis H6: Local support policies moderate the relationship between digital transformation and human resource development in the heritage industry.

Data analysis methods

Data were processed using SmartPLS 4 software in two main stages: measurement model testing and structural model testing.

First, the scales were tested for internal reliability through Cronbach's Alpha and Composite Reliability (CR). Convergent and discriminant validity were assessed using Average Variance Extracted (AVE) and the Fornell-Larcker criterion. All scales with Cronbach's Alpha and CR values greater than 0.7, AVE greater than 0.5 were considered satisfactory (Hair et al., 2021).

Next, the structural model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). The model's suitability was assessed using the coefficient of determination (R^2) and the predictive index (Q^2) to examine the model's ability to explain and predict the dependent variables.

After ensuring the model's suitability, the research hypotheses were tested through structural model analysis, path coefficient estimation, and statistical significance testing of each relationship.

4. RESEARCH RESULTS AND DISCUSSION

Description of the research sample

To ensure that the research results are representative and reflect the reality of human resources in the heritage sector in Lang Son province, the research team conducted a survey of 230 subjects working at museums, historical and cultural relics, scenic spots and local cultural centers. The collected data were compiled and presented in the table below to describe the demographic characteristics, qualifications, experience and job position of the research sample.

Table 1. Characteristics of the study sample

Characteristic	Group	Quantity	Rate (%)
Gender	Male	98	42.6
	Female	132	57.4
Age	Under 30 years old	52	22.6

	30-40 years old	104	45.2
	Over 40 years old	74	32.2
Educational level	Secondary/College	38	16.5
	University	143	62.2
	Postgraduate (Master's degree or higher)	49	21.3
Years of service	Under 5 years	61	26.5
	From 5-10 years	93	40.4
	Over 10 years	76	33.0
Unit type	Museums, thematic exhibitions	54	23.5
	Historical and cultural relic management board	79	34.3
	Tourist areas, scenic spots	61	26.5
	Cultural centers, other public service units	36	15.7
Job position	Staff, professional experts	151	65.7

(Source: Data processing results on SPSS 26.0 software)

The results in Table 1 show that the sample structure reflects quite fully the human resource situation in the heritage sector in Lang Son. The proportion of women is dominant (57.4%), consistent with the characteristics of the service and cultural sectors. The age range is mainly between 30 and 40 years old (45.2%), which is a group of human resources in the career development stage and has good ability to receive technology. University education accounts for 62.2%, proving that the staff has a relatively solid knowledge base. The majority of survey participants have more than 5 years of experience, showing that they understand the industry's activities and have experience in heritage conservation. The structure of diverse types of units, from museums, cultural tourism areas to relic management boards, helps the research sample to be highly generalizable and suitable for quantitative analysis.

Assessment of scale reliability and validity

Before analyzing the structural model, it is necessary to test the reliability and validity of the scales to ensure data quality. The scales are established based on the theory of digital transformation, digital capabilities, human resource development, organizational culture and local support policies. The test results are presented below.

Table 2. Descriptive statistics and reliability of the scales

Latent variables	Number of observed variables	Mean	Standard deviation	Cronbach's Alpha	CR	AVE
Digital transformation at heritage units (CDT)	6	3.42	0.68	0.89	0.91	0.62
Digital workforce capabilities (NLS)	5	3.27	0.71	0.88	0.90	0.61
Heritage Human Resource Development (HTHD)	6	3.55	0.66	0.90	0.92	0.63
Organizational culture supports innovation (VHTC)	4	3.60	0.70	0.87	0.89	0.67
Local support policy (CSHL)	4	3.31	0.73	0.86	0.88	0.65

(Source: Data processing results on SPSS 26.0 software)

The results show that all scales have high internal reliability, with Cronbach's Alpha coefficient greater than 0.86 and composite reliability exceeding 0.88. The average variance extracted (AVE) ranges from 0.61 to 0.67, demonstrating good convergence of observed variables. The mean values range from 3.27-3.60, indicating that respondents positively assess the level of digital transformation, digital capacity and human resource development in the heritage industry, but the level is not high, reflecting the current situation of Lang Son in the initial stage of transformation. Organizational culture has the highest average score (3.60), demonstrating the openness and cooperative spirit of heritage units, while digital capacity (3.27) and local support policies (3.31) are limited and need more attention.

Testing discriminant validity and correlation between variables

After ensuring reliability, the model was tested for discriminant validity using the Fornell-Larcker matrix. The results shown below show that the relationships between the latent variables are strong but not overlapping.

Table 3. Fornell-Larcker matrix and correlation coefficients between latent variables

Variable	CDT	NLS	PTNNL	VHTC	CSHL

CDT	0.79				
NLS	0.61	0.78			
PTNNL	0.62	0.68	0.79		
VHTC	0.54	0.56	0.60	0.82	
CSHL	0.52	0.53	0.58	0.55	0.81

(Source: Data processing results on SPSS 26.0 software)

The square root AVE of each variable (values on the diagonal) is larger than the correlation coefficient of that variable with other variables, demonstrating that the model has good discriminant validity. The positive and moderate to high correlation coefficients (0.52-0.68) indicate that the variables are reasonably related and reflect a tight conceptual structure. The strongest correlation between human resource development and digital capabilities (0.68) confirms that digital capabilities play a central role in the impact mechanism of digital transformation.

Structural model testing

After testing the measurement model, the structural model was estimated using the PLS-SEM method. The model's goodness of fit was assessed using the coefficient of determination (R^2) and the predictive index (Q^2).

Table 4. Coefficient of determination and predictive ability

Dependent variable	R^2	Q^2
Digital Literacy (NLS)	0.61	0.37
Human Resource Development (HRD)	0.67	0.43

(Source: Data processing results on SPSS 26.0 software)

The results show that the model has a high level of explanation. Digital transformation explains 61% of the variation in digital capabilities, while digital transformation, digital capabilities, organizational culture and local policies explain 67% of the variation in human resource development. The Q^2 index is greater than 0.35, demonstrating that the model has good predictive ability and is consistent with real data.

The overall fit of the model was also strengthened by the root mean square error (RMSE < 0.08) and variance values less than 3, indicating no multicollinearity, ensuring statistical stability.

Testing the hypothesis system

The results of structural model testing allow for a detailed assessment of each relationship in the hypothesized system.

Table 5. Results of testing research hypotheses

Relationship	Coefficient β	t value	p-value	Conclude
CDT → NLS (H1)	0.78	19.47	< 0.001	Accept
CDT → PTNNL (H2)	0.28	4.92	< 0.001	Accept
NLS → PTNNL (H3)	0.46	7.81	< 0.001	Accept
CDT × VHTC → PTNNL (H4)	0.12	2.31	0.021	Accept
CDT × CSHL → PTNNL (H5)	0.10	2.01	0.045	Accept

(Source: Data processing results on SPSS 26.0 software)

Hypothesis H1: *Digital transformation has a positive impact on the digital capabilities of human resources in the heritage industry.*

The results showed a coefficient of $\beta = 0.78$ ($p < 0.001$), demonstrating a strong and statistically significant impact. This reflects that investing in digital infrastructure, technology adoption, and implementing digital systems helps heritage workers improve their access to and use of technology. This impact is also consistent with previous studies such as Bondarouk & Brewster (2016), which asserted that digital technology is a trigger for learning and adapting new skills.

Hypothesis H2: *Digital transformation has a direct positive impact on human resource development in the heritage industry.*

The coefficient $\beta = 0.28$ ($p < 0.001$) proves that this relationship is statistically significant, although the impact is not as strong as through digital capabilities. This shows that digital transformation contributes to expanding training opportunities, improving work processes and promoting human creativity, but the impact is still mainly mediated by changes in digital skills.

Hypothesis H3: *Digital capacity of human resources has a positive impact on human resource development in the heritage industry.*

With a coefficient of $\beta = 0.46$ ($p < 0.001$), this relationship clearly demonstrates the key role of digital competence as an endogenous motivator. Employees who are able to master technology and apply digital tools in heritage conservation, communication and management activities tend to develop their careers faster and more effectively.

Hypothesis H4: *Organizational culture moderates the relationship between digital transformation and human resource development in the heritage industry.*

The coefficient β = 0.12 (p = 0.021) confirms the statistically significant moderating effect. This shows that in organizations with a learning culture, willingness to innovate and encourage knowledge sharing, the impact of digital transformation on human resource development is amplified more strongly. The results are consistent with the observation of Parry & Strohmeier (2014) that organizational culture is the foundation for technology absorption in the digital transformation process.

Hypothesis H5: *Local support policies regulate the relationship between digital transformation and human resource development in the heritage industry.*

The coefficient β = 0.10 (p = 0.045) shows that the moderating role of policy is significant. In localities with a clear digital transformation strategy, investment in training, infrastructure, and technical support, the impact of digital transformation on human resource development will be stronger. On the contrary, in places lacking specific policies, digital transformation results are often formal and have not spread sustainable effectiveness.

The research results have demonstrated that the proposed theoretical model has high relevance and explanatory power. Digital transformation not only directly affects human resource development but also indirectly through the enhancement of digital capabilities - a central element of the transformation process in the heritage sector. At the same time, organizational culture and local policies play an important contextual role, increasing the effectiveness of digital transformation.

These findings confirm that, in the heritage sector in Lang Son, sustainable human resource development needs to go hand in hand with a targeted digital transformation strategy, accompanied by a digital capacity building program, and supported by a favorable policy-organizational environment.

5. CONCLUSION AND POLICY IMPLICATIONS

This study has clarified the relationship between digital transformation, digital capacity, organizational culture, local support policies and human resource development in the heritage sector, based on a quantitative survey of 230 officials, civil servants and

workers at heritage units in Lang Son province. Experimental results from the PLS-SEM model show that: (i) digital transformation has a direct and strong impact on human resource digital capacity; (ii) digital capacity plays a central role, both affected by digital transformation and positively affecting human resource development; (iii) organizational culture and local support policies play an important regulatory role, helping to amplify the impact of digital transformation on human resource development outcomes.

With a coefficient of determination R^2 of 0.67 for the human resource development variable, the model has demonstrated high explanatory power and good fit with practical data. This result contributes to strengthening the argument that the digital transformation process in the heritage industry is not just a technological change but a comprehensive change in people, organizations and policies. In which, digital capacity becomes an essential bridge between technology and human resource development, reflecting the adaptability and creativity of the human resource team in the new context.

Thus, the study not only contributes theoretically by expanding the analytical framework of the relationship between digital transformation and human resource development in the heritage sector, but also has profound practical significance for the policy-making process and human resource management in localities with similar characteristics as Lang Son.

From the research results, some specific policy implications can be proposed to improve the effectiveness of human resource development in the heritage industry under the impact of digital transformation as follows:

Firstly, perfecting the digital transformation strategy associated with human resource development.

State management agencies and cultural service units need to develop a unified digital transformation strategy with specific goals, roadmaps and evaluation indicators. Digital transformation in the heritage industry cannot stop at digitizing documents but must be associated with developing human capacity - the central factor determining success. The transformation roadmap should be designed in parallel with the human resource development plan, focusing on digital skills training, data management and innovative thinking for officials, civil servants, public employees and workers.

Second, strengthen training and develop digital capacity for heritage human resources. Training programs need to shift from traditional forms to blended learning models and online training. Content should focus on basic digital skills (using digital tools and platforms), data analysis skills, digital communication, heritage storytelling through technology, and digital project management. These training courses should be organized periodically, according to job titles and the actual needs of each unit, ensuring continuous updates with technological developments.

Third, build an organizational culture of innovation, learning and knowledge sharing. Organizational
culture needs to be oriented towards encouraging lifelong learning, openness to new things, and acceptance of experimentation in the digitalization process. Managers need to create a flexible working environment, encourage employees to proactively propose initiatives, and share experiences in applying technology in preserving, displaying and promoting heritage. Developing a learning culture not only improves the effectiveness of digital transformation but also helps strengthen employees' creativity - a core factor for sustainable human resource development.

Fourth, perfecting support mechanisms and policies at the local level. Lang Son provincial authorities need to have a policy to prioritize resources for digital transformation projects in the heritage sector, including financial support, technology infrastructure, and mechanisms to encourage public-private partnerships. In addition, it is necessary to issue policies to encourage training, attract and retain human resources with technological qualifications in the cultural sector. Coordination between the Department of Culture, the Department of Information and Communications, and universities and colleges is an important factor to ensure effective policy implementation.

Fifth, promote international cooperation and regional linkage in digital transformation of heritage.
Cooperation with international organizations, research institutes and technology enterprises helps heritage units access new technologies, learn management experiences and develop human resources capacity. In addition, regional linkage in digital tourism and culture development between Lang Son and the northern border provinces will create a connected digital heritage ecosystem, increasing the efficiency of management, promotion and exploitation of heritage values.

From the research results and policy implications mentioned above, it can be affirmed that digital transformation is an important driving force, but human resource development is a prerequisite to ensure sustainable success in the heritage industry. For Lang Son province, combining technology strategy with human development strategy, with the support of an appropriate organizational environment and policies, will create a solid foundation for preserving and promoting cultural heritage values in the digital age.

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