

Heritage preservation and digital livelihood development for ethnic minority women in Northwestern Vietnam: From tradition to global connectivity

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ABSTRACT:

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I. INTRODUCTION

Cultural heritage is increasingly understood not only as a repository of collective memory and identity, but also as a form of cultural capital capable of generating sustainable livelihoods when embedded within appropriate socio-economic frameworks. From a cultural economics perspective, heritage derives value through processes of preservation, transmission, and contextual use, rather than conservation in isolation [1]. In developing and transitional economies, this dual role has gained renewed attention amid global agendas on inclusive growth, gender equality, and digital transformation.

At the same time, the rapid expansion of digital technologies has reshaped how heritage is documented, circulated, and valorized. Digital platforms - ranging from online marketplaces and social media to immersive and AI-enabled applications - enable local cultural practices to transcend spatial constraints and reach global audiences [2], [3]. For ethnic minority communities historically marginalized within mainstream economic systems, digitalization offers new possibilities for heritage-based livelihoods, provided it is aligned with community capacities rather than imposed as a homogenizing force. Within this landscape, ethnic minority women occupy a pivotal yet structurally constrained position. Across contexts, women are primary custodians of intangible cultural heritage, including textile production, craft knowledge, rituals, and oral traditions, while simultaneously facing limited access to capital, decision-making power, and market connectivity [4], [5]. In tourism and heritage economies, women's labor is frequently informal and unevenly rewarded, highlighting the inadequacy of development models that treat gender outcomes as incidental rather than integral [6], [7].

Northwest Vietnam constitutes a particularly salient context for examining these dynamics. The region combines rich intangible cultural heritage with persistent socio-economic vulnerability and has been the focus of national policies on cultural preservation, poverty reduction, and, more recently, digital transformation [8]-[9]. Despite these efforts, existing frameworks tend to prioritize infrastructure and conservation outputs, while the mechanisms through which ethnic minority women convert heritage assets into sustainable digital livelihoods remain under-explored [10], [11].

Although international conventions such as UNESCO's Convention for the Safeguarding of the Intangible Cultural Heritage and CEDAW articulate strong normative commitments to cultural diversity and gender equality [12], [13], translating these principles into locally grounded and economically viable practices remains uneven, particularly where digital literacy, market access, and institutional support are limited.

Against this backdrop, this study examines the intersection of heritage preservation and digital livelihood development among ethnic minority women in Northwest Vietnam. Rather than treating heritage as an object of protection or tourism promotion, the paper conceptualizes heritage-based digital livelihoods as a process of negotiation through which women navigate tradition, technology, and market participation. By foregrounding community-level practices and lived experiences, the study contributes to scholarly debates on heritage economics, gendered livelihoods, and digital connectivity in marginalized cultural contexts.

II. LITERATURE REVIEW

2.1. Cultural heritage as an economic and livelihood asset

The theoretical linkage between cultural heritage and livelihood development is most coherently articulated within the cultural economics tradition, where heritage is framed as a form of cultural capital capable

of generating long-term socio-economic returns [1]. Throsby's seminal work provides a critical departure from instrumental views of culture by emphasizing the co-existence of intrinsic cultural value and instrumental economic value. This dual-value framework has become foundational in understanding how heritage assets can be mobilized within development strategies without reducing culture to a purely commercial commodity.

Building on this foundation, development-oriented scholarship has examined how heritage functions as a livelihood resource for marginalized populations, particularly ethnic minorities. Diaconu [7] conceptualizes heritage-based livelihoods as part of a broader negotiation of marginality, where cultural assets compensate for structural deficits in financial capital, market access, and political power. However, this compensatory function is inherently fragile. Heritage-based livelihoods are often informal, highly localized, and vulnerable to external market fluctuations, raising concerns about sustainability and equity.

Empirical evidence from Vietnam reinforces these concerns. Truong et al. [10] demonstrate that economic development initiatives can raise awareness of cultural preservation among ethnic minority communities, yet this does not automatically translate into improved livelihood outcomes. This disconnect suggests that heritage valorization alone is insufficient; mechanisms of value conversion—how cultural meaning is transformed into stable income—remain under-theorized. Moreover, much of the literature continues to treat ethnic communities as homogeneous units, overlooking internal differentiation by gender, age, and social status.

2.2. Gendered dimensions of heritage and livelihood construction

A growing body of literature has problematized the gender-neutral treatment of heritage-based development by foregrounding women's roles as cultural producers, transmitters, and mediators. In the Vietnamese context, Dang and Phan [4] argue that ethnic minority women occupy a paradoxical position: they are central to the reproduction of cultural practices yet peripheral in formal decision-making structures within tourism and heritage economies. Their analysis underscores the importance of social capital in shaping women's participation, while also revealing how cultural labor is frequently naturalized and undervalued.

Comparative international studies further illuminate this pattern. McCall and Mearns [6] show that community-based tourism initiatives can create pathways for women's empowerment, but only when accompanied by institutional support, skill development, and access to markets. Without these conditions, women's involvement risks reinforcing traditional gender roles rather than transforming them. Similarly, Silva and Santos [5] caution that heritage-based livelihoods may reproduce gendered inequalities if women's cultural contributions are not matched by control over income and strategic decision-making.

Despite these insights, the literature remains fragmented in its treatment of gender and heritage. While women's roles are increasingly acknowledged, fewer studies examine how gender intersects with technological change. In particular, the question of how digital platforms reconfigure women's agency in heritage-based livelihoods - by altering access to markets, narratives of authenticity, and modes of representation - remains insufficiently explored.

2.3. Digitalization, visibility, and value capture in heritage economies

Digital technologies have fundamentally reshaped the ways in which cultural heritage is documented, disseminated, and consumed. Recent scholarship emphasizes that digital platforms extend heritage beyond local boundaries, enabling global visibility and new forms of engagement. It also highlights the transformative potential of AI-driven and immersive technologies, arguing that digitalization can democratize access to heritage while fostering innovative livelihood opportunities [3].

In Vietnam, digital heritage initiatives have been positioned as tools for preserving indigenous knowledge and supporting tourism development, providing a comprehensive analysis of digitization efforts, noting positive impacts on cultural visibility and educational outreach [2]. However, they also identify a persistent imbalance between technological deployment and community capacity. Digital tools are often introduced without sufficient training or institutional support, limiting their effectiveness as livelihood-enabling mechanisms.

Recent studies on symbolic amplification mechanisms, such as celebrity endorsement and algorithmic visibility, further complicate this picture. Yang et al. [14] demonstrate that digital attention can enhance the appeal of intangible cultural heritage, yet the benefits of increased visibility are unevenly distributed. Cultural practitioners—particularly women—may gain recognition without proportional economic returns. This raises critical questions about value capture in digital heritage economies: who benefits from digital connectivity, and under what conditions does visibility translate into sustainable livelihoods?

2.4. Institutional and policy frameworks shaping heritage-based livelihoods

At the institutional level, heritage preservation and livelihood development are increasingly embedded within national and international policy frameworks. Vietnam's policy architecture reflects a long-term commitment to conserving ethnic minority cultures while promoting socio-economic development in

mountainous regions [8]-[9]. These policies align with international conventions on safeguarding intangible cultural heritage and advancing gender equality [12], [13].

However, policy-oriented studies suggest that implementation gaps persist. Domestic research indicates that livelihood development linked to cultural preservation often lacks clear operational models, particularly regarding market integration and gender responsiveness [11]. Policies tend to prioritize cultural conservation outputs - such as documentation and revitalization - while underemphasizing livelihood processes, including skill upgrading, digital entrepreneurship, and income diversification.

This gap between policy intent and practice is especially pronounced in digital contexts. While national strategies increasingly reference digital transformation, they rarely specify how ethnic minority women can be supported to engage with digital platforms as active economic agents rather than passive cultural representatives.

2.5. Synthesis and research gap

Synthesizing the reviewed literature reveals three critical tensions. First, while heritage is widely recognized as a valuable livelihood asset, its economic potential is constrained by structural inequalities and uneven value conversion mechanisms [1], [7]. Second, ethnic minority women are central to heritage preservation yet remain marginalized in heritage-based economies, particularly in terms of income control and strategic agency [4]-[6]. Third, digitalization introduces new opportunities for visibility and connectivity, but without adequate institutional mediation, it may reproduce or even exacerbate existing inequalities [2], [3], [14].

Notably absent from the literature is an integrated analysis of heritage preservation, digital livelihood development, and women's agency within specific regional contexts. Empirical research remains limited on how ethnic minority women in Northwest Vietnam navigate the transition from tradition-based cultural practices to digitally mediated livelihood strategies. Addressing this gap, the present study positions heritage not merely as an object of preservation, but as a dynamic resource through which ethnic minority women engage with digital connectivity, negotiate cultural value, and pursue sustainable livelihoods in a rapidly transforming socio-economic landscape.

III. RESEARCH CONTEXT & METHODOLOGY

3.1. Research context

Northwest Vietnam constitutes a particularly revealing empirical context for examining the intersection between heritage preservation and digital livelihood development among ethnic minority women. The region is characterized by a dense concentration of ethnic minority groups, a rich repository of intangible cultural heritage - such as textile crafts, ritual practices, and indigenous knowledge systems - and persistent structural disadvantages related to geography, income, and market access [8]-[10]. Within these communities, women play a central role in the reproduction and transmission of cultural practices, yet their economic participation remains largely informal and weakly integrated into broader value chains [4], [5].

Recent national policy initiatives emphasize both cultural preservation and socio-economic development in ethnic minority and mountainous areas, with increasing references to digital transformation and market connectivity [8]-[9]. However, as highlighted in the literature, policy articulation often outpaces empirical understanding of how ethnic minority women actually engage with digital platforms, negotiate cultural value, and convert heritage-based practices into sustainable livelihoods [2], [11]. This mismatch renders Northwest Vietnam an analytically productive site for exploring not only outcomes but also processes - how tradition is recontextualized through digital connectivity at the community level.

Accordingly, this study adopts a case-oriented regional approach, focusing on multiple ethnic minority communities across Northwest Vietnam rather than a single locality. This design allows for capturing variation in digital exposure, institutional support, and livelihood strategies while maintaining contextual coherence.

3.2. Research questions and hypotheses

Grounded in the theoretical tensions identified in the literature—between cultural value and economic value [1], gendered heritage labor and agency [4], [5], and uneven digital value capture [3], [14] - the study is guided by the following research questions:

RQ1: How do ethnic minority women in Northwest Vietnam engage with cultural heritage as a livelihood resource in digitally mediated environments?

RQ2: What role do digital platforms play in reshaping women's agency, market access, and value capture within heritage-based livelihoods?

RQ3: How do institutional and policy contexts mediate the translation of heritage preservation into sustainable digital livelihoods for ethnic minority women?

To complement these exploratory questions and strengthen analytical rigor, the study advances two testable hypotheses:

H1: Higher levels of digital engagement are positively associated with improved livelihood outcomes among ethnic minority women engaged in heritage-based activities.

H2: Digital connectivity moderates the relationship between heritage participation and women's economic agency, strengthening income stability and market reach when institutional support is present.

These hypotheses are not treated as deterministic claims but as analytical propositions examined through mixed empirical evidence.

3.3. Research design: a mixed-methods approach

Given the complexity of heritage-based livelihoods and the need to capture both measurable outcomes and lived experiences, the study adopts a mixed-methods research design, with a deliberate emphasis on qualitative inquiry complemented by quantitative analysis. This design enables triangulation between structural patterns and subjective meanings, aligning with calls in heritage and development research to move beyond purely instrumental evaluations [1], [5]. The research follows a sequential explanatory logic. Quantitative data provide an overview of livelihood patterns, digital engagement levels, and perceived outcomes, while qualitative data deepen interpretation by illuminating mechanisms, constraints, and negotiations underlying these patterns.

Quantitative component (n = 281): The quantitative dataset consists of a structured survey administered to 281 ethnic minority women engaged in heritage-related livelihood activities across selected provinces in Northwest Vietnam. The survey captures variables related to:

- ✓ participation in heritage-based production,
- ✓ forms and intensity of digital platform use,
- ✓ income diversification and stability,
- ✓ perceived changes in economic agency and market access.

Respondents were selected using purposive and snowball sampling to ensure representation across different ethnic groups, livelihood types, and levels of digital exposure.

Qualitative component (N = 37): The qualitative component comprises 37 in-depth interviews with ethnic minority women, community facilitators, and local stakeholders. Interviewees were selected to reflect variation in age, ethnic background, livelihood trajectory, and digital engagement. Semi-structured interviews focused on:

- ✓ meanings attached to heritage practices,
- ✓ experiences of engaging with digital platforms,
- ✓ perceived benefits and risks of digital livelihood strategies,
- ✓ interactions with institutional and policy frameworks.
- ✓ This qualitative sample size allows for thematic saturation while preserving analytical depth.

3.4. Analytical strategy

Quantitative data were analyzed using descriptive statistics and exploratory correlation analysis to assess relationships between digital engagement, heritage participation, and livelihood outcomes. These analyses primarily serve a contextualizing and corroborative function, rather than causal inference.

Qualitative data were analyzed through thematic coding, following an iterative process that moved between inductive insights and theoretically informed categories derived from the literature on cultural economics, gendered livelihoods, and digital heritage [1], [3]-[5]. Particular attention was paid to moments of tension - where increased visibility did not correspond to improved income, or where digital participation reconfigured but did not necessarily transform gendered power relations.

3.5. Methodological contribution

By integrating quantitative patterns with qualitative depth, this methodological approach addresses a key limitation in existing studies that either emphasize policy discourse or isolate technological dimensions without grounding them in women's lived experiences [2], [11], [14]. The design enables a nuanced examination of how heritage preservation and digital livelihood development intersect, not as linear processes but as negotiated pathways shaped by cultural norms, institutional contexts, and technological affordances. In doing so, the study positions methodology itself as a bridge between tradition and global connectivity - mirroring the very processes under investigation.

IV. RESULTS AND DISCUSSION

4.1. Digital engagement and livelihood outcomes: Beyond visibility

In responding to RQ1 and testing H1, the analysis moves beyond a simplistic reading of digital participation as mere access to technology. Instead, digital engagement is conceptualized as a relational and practice-based construct, capturing not only the frequency of platform use, but also the breadth of digital channels and the degree of women's autonomy in content creation and interaction. This operationalization is consistent

with the study's theoretical positioning of heritage-based livelihoods as negotiated processes rather than static outcomes.

Table 1. Digital engagement and livelihood outcomes among ethnic minority women (n = 281)

Digital engagement level	Average monthly income (USD)	Income stability index*	Market reach score**
Low (n = 96)	112	0.38	1.6
Medium (n = 109)	168	0.54	2.9
High (n = 76)	246	0.71	4.2

* Income stability index ranges from 0 (high volatility) to 1 (high stability).

** Market reach score reflects the number of distinct buyer locations (local-regional-national-international).

Source: Authors' own survey (2025)

A first-order reading of the data confirms a clear positive gradient: higher levels of digital engagement correspond with increased average income, greater income stability, and expanded market reach. This pattern provides empirical support for **H1**, aligning with existing claims that digital connectivity can enhance livelihood opportunities in heritage-based economies [1], [3]. However, a closer examination reveals that this relationship is neither linear nor uniform in its underlying mechanisms.

The most analytically significant shift occurs between the *low* and *medium* engagement groups. Even moderate engagement with digital platforms is associated with a marked improvement in income stability (from 0.38 to 0.54) and a near doubling of market reach. Qualitative accounts suggest that this transition reflects a structural break rather than incremental growth. Women in the medium group begin to decouple their livelihoods from exclusively local demand - often seasonal, tourism-dependent, and price-constrained - by accessing regional and national buyers through basic digital channels such as messaging applications and social media marketplaces. In this sense, partial digital engagement functions less as a productivity enhancer and more as a risk-reduction mechanism, mitigating income volatility that has historically characterized heritage-based livelihoods in mountainous regions.

The movement from *medium* to *high* engagement, by contrast, is characterized by a different logic. Income increases remain substantial, but the most pronounced change lies in market reach, which expands into national and international circuits. This indicates a qualitative reconfiguration of scale rather than a simple intensification of existing practices. Digital platforms enable heritage products—textiles, handicrafts, and symbolic cultural goods—to circulate independently of physical tourist flows, thereby loosening the spatial constraints that have long limited value creation in ethnic minority economies. From a cultural economics perspective, this shift illustrates how value is generated not solely through production but through the repositioning of cultural capital within wider circuits of circulation [1].

At the same time, the data caution against an uncritical equation of higher digital engagement with unambiguous livelihood success. While the high-engagement group exhibits the strongest performance across all indicators, the dispersion within this group is also greater, a pattern explored further in Section 4.3. Interview evidence indicates that some women experience income gains that are episodic rather than sustained, reflecting exposure to fluctuating digital demand and platform-mediated competition. Thus, digital engagement amplifies opportunity, but it also introduces new forms of precarity tied to algorithmic visibility and market saturation.

Taken together, the findings suggest that digital engagement operates as a threshold-based enabler rather than a linear driver of livelihood improvement. Initial engagement disrupts localized dependency and stabilizes income, while advanced engagement reconfigures scale and connectivity. Yet, neither stage guarantees proportional value capture. This nuanced pattern reinforces the study's central argument: digital platforms reshape the conditions under which heritage-based livelihoods are pursued, but they do not, in themselves, resolve the structural constraints faced by ethnic minority women. Instead, they open a contested space in which visibility, market access, and economic security are renegotiated—a theme that becomes more pronounced in the subsequent analysis of agency and value capture.

4.2. Reconfiguring women's agency through digital heritage practices

Improvements in income and market reach, though analytically important, do not in themselves capture the deeper transformations associated with digital heritage-based livelihoods. To meaningfully address RQ2, the analysis must move beyond outcome-oriented indicators and engage with the question of agency - understood not as abstract empowerment, but as women's effective capacity to exercise strategic choice within culturally and economically structured heritage value chains. Addressing **RQ2** requires shifting analytical attention from outcomes to agency, understood here not as individual empowerment in an abstract sense, but as women's *effective capacity to make and act upon strategic choices* within heritage-based value chains. In the context of ethnic minority livelihoods, agency is inseparable from questions of representation, control over cultural narratives, and authority over income allocation.

Drawing on both survey and interview data, the study conceptualizes women's agency across three interrelated dimensions: decision-making autonomy in production and sales, narrative control over heritage representation, and control over income use. These dimensions capture not only economic participation but also the power relations embedded in digitally mediated heritage practices.

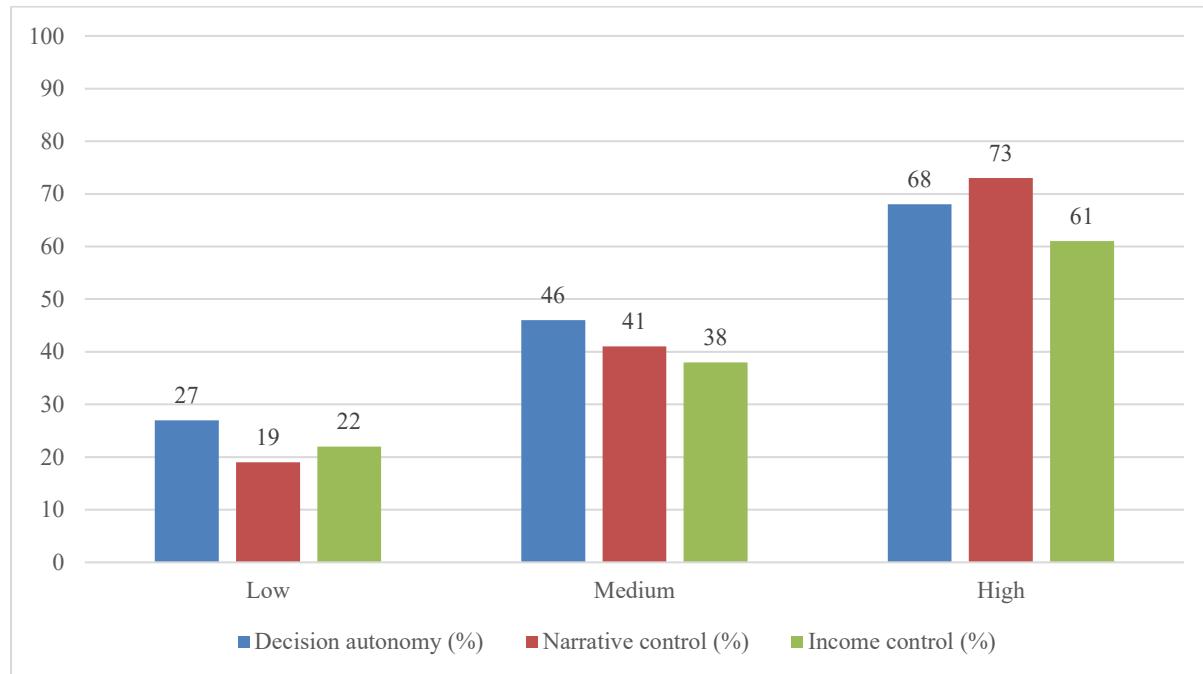


Figure 1. Digital engagement and dimensions of women's economic agency

Source: Authors' own survey (2025).

A surface reading of Figure 1 suggests a steady increase in agency alongside rising digital engagement. However, the analytical significance lies less in the upward trend itself than in the uneven pacing across dimensions. In particular, agency does not expand uniformly, nor does it automatically follow income gains documented in Section 4.1. Among women with *medium* digital engagement, improvements in income and market access are already evident, yet control over income and narratives remains comparatively constrained. Interview data indicate that this group often participates in digital markets through mediated arrangements: products are sold online, but pricing, storytelling, and customer interaction are managed by intermediaries such as tourism operators, cooperative leaders, or male family members. In such cases, digitalization reorganizes labor without fundamentally redistributing power. Women's cultural labor becomes more visible and marketable, but their role remains largely executional rather than strategic.

This pattern exposes a critical mechanism: digital inclusion can coexist with persistent gendered subordination. Visibility expands faster than authority. Women are increasingly present in digital spaces, yet their capacity to define what counts as "authentic," to negotiate prices, or to decide how income is reinvested remains partial. This finding complicates celebratory narratives of digital empowerment and resonates with broader critiques in gender and development scholarship that warn against equating participation with agency [5], [6].

A more pronounced shift occurs within the *high* engagement group, particularly in narrative control, which rises sharply to 73%. Qualitative evidence suggests that direct management of digital interfaces - social media pages, online shops, livestream sales - constitutes a turning point. When women themselves curate images, write descriptions, and interact with buyers, heritage practices are no longer merely performed; they are strategically narrated. This narrative control has material consequences. Women report greater leverage in price setting, selective engagement with buyers, and resistance to demands that compromise cultural integrity for commercial appeal. Importantly, narrative control emerges as a precondition for economic agency, not its by-product. Women who control the story of their heritage are better positioned to assert its value, justify pricing, and contest exploitative arrangements. This finding extends cultural economics theory by showing that value creation in heritage economies depends not only on circulation but on who governs meaning within that circulation [1].

Despite these gains, income control remains the least responsive dimension of agency, even at high engagement levels. This lag reflects deeply embedded household and community norms governing financial

decision-making. Digital tools may expand women's earning capacity, but they do not automatically override intra-household power relations. In several interviews, women described contributing a larger share of household income while still deferring major spending decisions to male relatives. Digitalization thus reshapes economic flows without necessarily transforming gendered authority structures. Taken together, these findings suggest that digital platforms function as conditional reconfigurators of agency. They open new spaces for autonomy and self-representation, but the extent to which these spaces translate into substantive power depends on women's positional control within digital processes. Agency expands most decisively when women move from being *digitally present* to being *digitally sovereign*—that is, when they command both the technological interface and the cultural narrative it conveys.

This analysis reinforces the study's broader argument that heritage-based digital livelihoods should not be evaluated solely through income metrics. For ethnic minority women, the transformative potential of digital engagement lies in its capacity to recalibrate symbolic and economic authority simultaneously. Where this recalibration remains incomplete, digitalization risks intensifying women's labor and visibility without proportionate gains in control - a tension that becomes even more pronounced when examining patterns of value capture, as discussed in Section 4.3.

4.3. The visibility–value capture paradox in digital heritage economies

One of the most persistent tensions emerging from the empirical material lies in the growing disjunction between cultural visibility and economic value capture. As digital platforms extend the reach of heritage practices beyond local and regional boundaries, they simultaneously restructure how value is generated, mediated, and appropriated. The findings suggest that visibility—often celebrated as a marker of success in digital economies—constitutes an unstable and ambiguous form of capital for ethnic minority women engaged in heritage-based livelihoods. To unpack this paradox, Figure 2 examines income outcomes among highly digitally engaged participants under different levels of institutional support. Rather than assuming that digital engagement yields uniform economic benefits, the figure foregrounds interaction effects that reveal how structural conditions shape the monetization capacity of digital heritage practices.

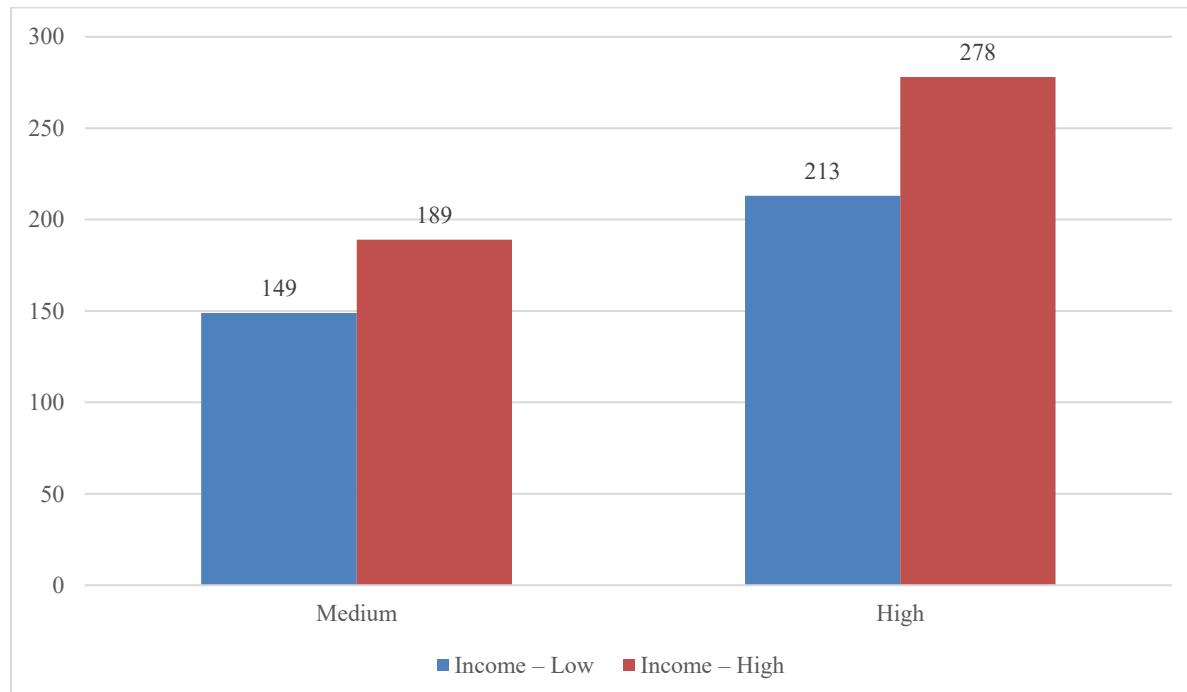


Figure 2. Visibility versus value capture outcomes among high-engagement participants (n = 76)

Source: Authors' own survey (2025).

Figure 2 demonstrates a pronounced divergence in income trajectories between participants with high and low levels of institutional support. Although income increases with intensified digital engagement in both groups, growth is substantially steeper and more stable among those embedded in supportive institutional arrangements. This widening gap indicates cumulative advantage rather than additive returns: digital engagement amplifies existing support structures instead of compensating for their absence. In this configuration, digital platforms function less as equalizing tools and more as multipliers of institutional capacity. Digital skills and platform access, while necessary, prove insufficient to secure sustained monetary returns without complementary mechanisms such as training continuity, cooperative organization, and market facilitation.

The quantitative pattern is further illuminated by qualitative evidence, which reveals that the visibility-value gap is not accidental but structurally produced. Three interlocking mechanisms account for this paradox.

- First, algorithmic mediation reshapes demand in ways misaligned with heritage production logics. Platform algorithms privilege frequency, immediacy, and engagement velocity, whereas heritage-based crafts are characterized by slow production cycles and high labor intensity. Women unable to sustain continuous content output experience abrupt declines in exposure, irrespective of product quality or cultural significance. Visibility, therefore, is governed by temporal logics that conflict with the rhythms of heritage labor, rendering attention volatile and difficult to sustain.

- Second, digitalization intensifies rather than eliminates intermediation. Contrary to narratives of platform-enabled disintermediation, many women encounter new layers of digital brokers who control logistics, pricing, and customer access. These actors translate cultural visibility into market transactions while capturing a disproportionate share of value. Women gain recognition as cultural producers, yet remain excluded from strategic decision-making nodes within the value chain. This reproduces familiar patterns of marginalization observed in non-digital heritage economies, now magnified by scale and speed.

- Third, digital exposure redistributes risk asymmetrically. While platforms expand potential demand, they externalize uncertainty onto producers. Algorithmic volatility, shifting platform rules, and opportunistic buyers generate income instability that disproportionately affects women, who often lack financial buffers and alternative market channels. Visibility attracts opportunity, but it simultaneously intensifies precarity by exposing women to global market fluctuations without corresponding protections.

These dynamics are not solely economic but also symbolic. Interviews reveal that women are frequently celebrated as bearers of “authentic culture” within digital narratives curated by external actors. Such symbolic elevation, however, rarely translates into bargaining power. On the contrary, claims of authenticity are sometimes mobilized to justify low prices or unpaid cultural labor, producing what can be described as symbolic appropriation without economic reciprocity. Cultural meaning circulates widely, while material benefits remain constrained—echoing longstanding critiques of heritage commodification [5], [14]. Taken together, the findings indicate that visibility functions as a necessary but insufficient condition for sustainable digital livelihoods. Without mechanisms that enable women to convert attention into durable economic claims—such as pricing authority, contractual security, and collective bargaining—visibility risks becoming a trap rather than a pathway. In this sense, digital heritage economies reproduce a familiar inequality in novel form: cultural value travels far, while economic value remains concentrated.

This paradox provides a critical bridge to the next section. It underscores the analytical necessity of distinguishing between the circulation of meaning and the capture of value, and it foregrounds institutional mediation as the decisive factor that determines whether visibility stabilizes into livelihood sustainability or dissipates into fleeting recognition. To systematize these qualitative mechanisms, Table 2 contrasts two distinct livelihood pathways observed among highly engaged participants: a fragmented, precarious trajectory under weak institutional support and a linked, sustainable trajectory enabled by institutional mediation. Rather than representing individual attributes, the dimensions in the table capture relational conditions that shape how visibility is translated - or fails to be translated - into durable economic value.

Table 2. Qualitative dimensions shaping the sustainability of digital heritage livelihoods

Analytical dimension	Fragmented/Precarious pathway (Low institutional support)	Linked/Sustainable pathway (High institutional support)
Bargaining power	Dependence on emerging “digital brokers”; price-setting constrained by information asymmetries and logistical dependence.	Collective negotiation through cooperatives; greater control over pricing and coordination across the supply chain.
Algorithmic risk management	Income fluctuates with trends and platform visibility algorithms; high pressure to maintain continuous content output.	More stable demand secured through institutional networks and longer-term contracts; reduced dependence on algorithmic exposure.
Cultural integration	Rapid commercialization and standardization to meet large digital orders, leading to erosion of heritage value.	Strategic balance between preservation and innovation; structured storytelling sustains cultural integrity and higher price premiums.

Source: Authors' own qualitative interviews and thematic analysis (2025).

Read together, the three qualitative dimensions in Table 2 reveal that sustainability in digital heritage livelihoods is not determined by any single factor, but by the alignment between bargaining power, risk governance, and cultural integration. Where these dimensions remain fragmented, visibility amplifies vulnerability: women gain exposure without control, absorb algorithmic risk without protection, and face pressure to dilute cultural meaning in pursuit of scale. Conversely, when institutional mediation links these dimensions into a coherent configuration, visibility becomes governable rather than volatile. Collective bargaining stabilizes prices, organizational networks buffer algorithmic uncertainty, and structured storytelling preserves cultural value while justifying higher premiums. Importantly, these dimensions are mutually reinforcing. Bargaining power

enables cultural integrity; cultural integrity sustains price premiums; and both reduce exposure to algorithm-driven volatility. This configuration explains why similar levels of digital engagement yield divergent livelihood outcomes. The decisive variable is not visibility itself, but whether women can convert attention into enforceable economic claims. Table 3 thus substantiates the visibility–value capture paradox by showing that, in the absence of institutional linkage, digital exposure intensifies precarity rather than mitigating it.

4.4. Institutional mediation as a moderating factor

To rigorously test **H2**, this section examines institutional support not as an auxiliary condition, but as a structural moderator shaping how digital engagement translates into livelihood outcomes. Moving beyond additive assumptions, the analysis focuses on interaction effects between digital intensity and institutional mediation across income level and income stability dimensions.

Table 3. Livelihood outcomes by digital engagement and institutional support

Digital engagement	Institutional support	Avg. income (USD)	Income stability
Medium	Low	149	0.46
Medium	High	189	0.61
High	Low	213	0.58
High	High	278	0.77

Source: Authors' own survey (2025).

The data reveal a pronounced moderating role of institutional support across both livelihood indicators. While higher digital engagement is associated with improved outcomes in all cases, institutional mediation substantially alters the *rate* and *quality* of these gains. Participants receiving strong institutional support consistently outperform their low-support counterparts at equivalent levels of digital engagement, confirming that engagement intensity alone does not determine livelihood success.

A particularly revealing pattern emerges in income stability. Women with medium digital engagement but high institutional support achieve greater income stability than those with high engagement but weak support. This inversion challenges linear, technology-driven development models by demonstrating that institutional scaffolding can compensate for—and in some cases outweigh—differences in digital intensity. Stability, in this sense, appears less sensitive to platform usage frequency than to coordinated market access, risk-sharing mechanisms, and continuity of skill development.

Read in conjunction with Figures A and B, these findings suggest that institutions function as value translators rather than mere enablers. Digital platforms generate visibility and transactional possibility, but institutional arrangements determine whether such visibility is converted into durable economic value. Training programs align production with market demand; cooperative structures reduce individual exposure to volatility; and digital facilitation mitigates asymmetries in information and bargaining power. Without these mediating mechanisms, increased engagement risks amplifying precarity rather than alleviating it.

The confirmation of **H2** thus carries broader theoretical and policy implications. Conceptually, it supports a relational view of digital livelihoods, where outcomes emerge from the interaction between technological agency and institutional embeddedness. From a policy perspective, the results directly address the gap identified in Section 2.4, cautioning against development strategies that prioritize platform access while neglecting institutional capacity. In heritage-based economies, sustainable digital livelihoods are not produced by connectivity alone, but by the institutional conditions that stabilize and govern its economic effects.

4.5. From tradition to global connectivity

Synthesizing evidence across quantitative patterns and qualitative insights, this study advances a processual model that conceptualizes heritage-based digital livelihoods as an *evolving socio-economic pathway* rather than a linear outcome of digital access. The model captures how ethnic minority women navigate successive stages of transformation, each shaped by distinct forms of agency, constraint, and mediation, etc.

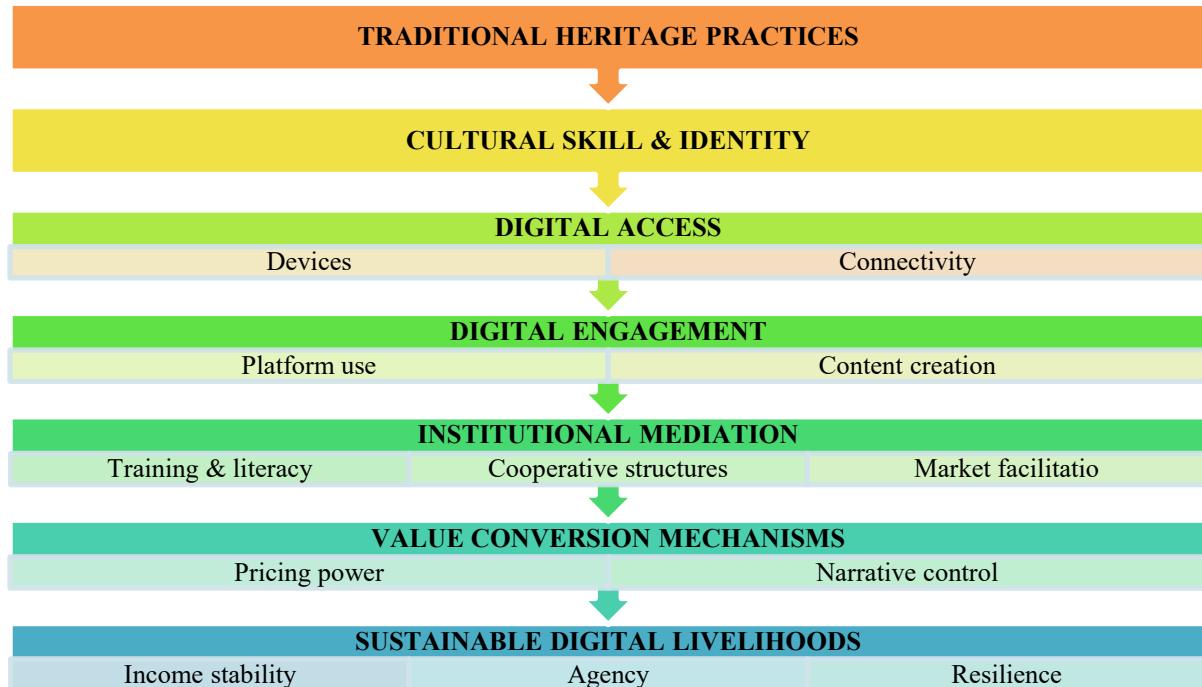


Figure 4. Proposed pathway for heritage-based digital livelihood transformation

Source: Authors' own survey (2025).

The proposed pathway foregrounds mediation points as the decisive moments at which digital participation either translates into sustainable livelihoods or stalls at the level of symbolic visibility. Contrary to diffusionist assumptions that position digital access as a sufficient catalyst, the model demonstrates that access and engagement constitute *necessary but insufficient* conditions for livelihood transformation.

Crucially, institutional mediation operates not as a parallel input but as an intervening process between digital engagement and value conversion. This positioning is empirically grounded in the interaction effects identified in Sections 4.3 and 4.4, where institutional support systematically reshapes both income magnitude and income stability. The model thus explains *why* higher engagement yields uneven returns: without institutional scaffolding, engagement enhances exposure without securing pricing power or narrative control.

The transition from cultural skill to economic value is therefore contingent upon women's ability to move from content production to value governance. Training enhances strategic literacy; cooperative structures redistribute risk and bargaining capacity; and market facilitation stabilizes demand across spatial and seasonal fluctuations. These mechanisms collectively enable women to retain authorship over cultural narratives, preventing the external appropriation of heritage value.

By integrating gendered agency into a process-oriented framework, the model extends heritage economics and digital livelihood literature in two ways. First, it reframes digital livelihoods as institutionally embedded trajectories rather than individual success stories. Second, it positions sustainability not as income maximization, but as the convergence of stability, agency, and resilience over time. In doing so, the framework provides an analytically robust lens for interpreting digital heritage initiatives beyond technology-centric narratives.

4.6. Discussion

Taken together, the findings compel a reconsideration of widely held assumptions in heritage-led development and digital inclusion discourses. Rather than functioning as automatic engines of inclusive growth, heritage preservation and digitalization emerge in this study as contingent socio-economic processes, whose outcomes are shaped by mediation, power relations, and gendered agency. For ethnic minority women in Northwest Vietnam, digital platforms expand horizons of visibility and connectivity, yet these horizons remain structurally fragile unless embedded within supportive institutional arrangements.

First, the study re-theorizes heritage-based digital livelihoods as negotiated pathways, not technological endpoints. The empirical patterns observed in Sections 4.1 and 4.3 demonstrate that increased digital engagement correlates with improved income and market reach, but only up to a threshold beyond which returns become uneven. This finding challenges linear innovation models that equate adoption with impact. Instead, it aligns with cultural economics perspectives that locate value not in cultural production per se, but in the conditions under which cultural capital is circulated, interpreted, and monetized. Heritage, in this sense, is neither an inert asset nor

a guaranteed livelihood resource; it becomes economically meaningful only through socially mediated processes of conversion.

Second, the analysis advances a gender-sensitive understanding of agency within digital heritage economies. Women's empowerment does not arise simply from participation in digital platforms, nor from increased visibility of cultural practices. As shown in Sections 4.2 and 4.4, agency materializes when women gain control over narratives, pricing decisions, and market relations. Without such control, digitalization risks reproducing familiar asymmetries: women supply cultural labor while value accrues elsewhere. This finding extends feminist critiques of heritage and tourism economies by demonstrating how digital spaces, far from being inherently emancipatory, can reconfigure - but not necessarily dismantle - gendered power relations.

Third, the study reframes the role of institutions from auxiliary support structures to central value translators within heritage-based digital livelihoods. Institutional mediation - through training, cooperative organization, and market facilitation - does not merely enhance efficiency; it fundamentally reshapes how visibility is converted into economic durability. The interaction effects identified in Section 4.4 reveal that institutional presence can compensate for lower levels of digital engagement, while its absence can neutralize the advantages of high engagement. This insight challenges technology-centric development narratives and underscores the necessity of governance mechanisms that stabilize income flows, redistribute risk, and protect cultural authorship.

In this light, heritage preservation is redefined not as a static safeguarding exercise, but as a dynamic arena of socio-economic negotiation. Ethnic minority women are not passive bearers of tradition nor simple beneficiaries of digital tools; they are strategic actors who continuously reinterpret cultural knowledge in response to market signals, institutional constraints, and global connectivity. The processual model proposed in Section 4.5 captures this dynamism by situating sustainability at the intersection of stability, agency, and resilience rather than income maximization alone.

By integrating heritage economics, gender analysis, and digital livelihood theory within a regionally grounded empirical framework, this study contributes a nuanced conceptualization of how tradition and global connectivity are mutually constituted. It suggests that the future of heritage-based development lies not in choosing between preservation and innovation, but in governing the spaces where cultural meaning, digital visibility, and economic value intersect.

V. CONCLUSION

This study set out to examine how heritage preservation intersects with digital livelihood development for ethnic minority women in Northwest Vietnam, moving beyond celebratory narratives of digital inclusion and heritage valorization. By integrating cultural economics, gender analysis, and digital livelihood perspectives within a mixed-methods framework, the research demonstrates that heritage-based digital livelihoods are neither automatic outcomes of technological adoption nor static extensions of traditional practices. Instead, they are processual, mediated, and deeply embedded in institutional and gendered power relations.

Empirically, the findings reveal that digital engagement is positively associated with income levels, income stability, and market reach, yet these relationships are non-linear and uneven. Increased visibility through digital platforms does not, in itself, guarantee sustainable livelihood outcomes. What ultimately differentiates fragile gains from durable economic agency is the presence of institutional mediation that enables value conversion—transforming cultural visibility into pricing power, narrative control, and market resilience. This insight reframes digital platforms from independent drivers of development into conditional infrastructures whose effects depend on governance, capacity-building, and collective organization.

From a theoretical standpoint, the study advances three contributions. First, it reconceptualizes heritage-based digital livelihoods as negotiated pathways, emphasizing mediation points rather than end results. Second, it refines the notion of women's agency in heritage economies by demonstrating that empowerment is contingent upon control over value flows, not participation alone. Third, it positions institutions as central actors in digital heritage economies, functioning as translators between cultural capital and economic sustainability. Together, these contributions extend existing literature that has tended to isolate heritage preservation, gender empowerment, or digitalization as separate analytical domains.

At a practical level, the findings carry important implications for policy and development practice in ethnic minority and mountainous regions. Strategies focused solely on cultural safeguarding, infrastructure provision, or platform access are unlikely to generate inclusive and sustainable outcomes. Instead, policy interventions must prioritize institutional mechanisms that enhance digital literacy, support cooperative forms of organization, and stabilize market access for heritage-based products and services. Importantly, such interventions should be designed to strengthen women's strategic agency rather than reinforcing their roles as informal cultural laborers.

Several limitations should be acknowledged. The study focuses on Northwest Vietnam, and while the region offers analytically rich insights, the findings may not be fully generalizable to other cultural or institutional

contexts. In addition, the quantitative analysis emphasizes association rather than causal inference. Future research could employ longitudinal designs to trace livelihood trajectories over time, or comparative studies across regions to further test the processual model proposed in this paper.

In conclusion, heritage preservation and digitalization should not be understood as parallel development agendas, but as intertwined processes whose outcomes depend on how cultural meaning, technological connectivity, and institutional power are aligned. By foregrounding ethnic minority women as active agents within these processes, this study underscores that the transition from tradition to global connectivity is not a linear journey, but a negotiated transformation—one that holds promise for sustainable livelihoods only when visibility is matched by agency and value capture is anchored in supportive institutional frameworks.

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