

Exploring the Coupling Breakthrough Path for Consumption Upgrading and Business Format Restructuring in the Industrial Heritage District of a Wine City Based on Cultural – Tourism Integration

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Abstract: As a unique type of spatial relic in the Wine City, the brewing industrial heritage district carries production memories and regional wine cultural symbols, and in the process of cultural-tourism integration, it faces the deep coupling dilemma between consumption upgrading demands and business-format restructuring pressures. In response to this issue, this study takes the industrial heritage district of the Wine City as its research object, and, starting from the excavation of cultural-tourism value, analyzes the translation mechanism of wine cultural symbols in industrial heritage, the regeneration paths of the spirit of place, the hierarchical transition of consumption upgrading demands, and the thresholds of experience economy, and also deconstructs the overlapping logic of emotional consumption and spatial narrative. Furthermore, it identifies structural tensions and adaptive blockages such as the inertia of functional replacement from production relics to consumption scenes, the rupture of spatial sequence and deviation from cultural continuum, and the interactive friction interfaces between wine cultural narrative capital and immersive consumption modes during the process of business-format restructuring. On this basis, it constructs a topological model of business-format symbiotic network based on cultural resonance, a feedback closed-loop operation mechanism in which consumption level transitions feed back into heritage activation, and the nonlinear coupling and interface reconstruction paths between the heritage field and the consumption ecosystem. This study reveals the coupling mechanism of consumption upgrading and business-format restructuring in the industrial heritage district of the Wine City, and provides a theoretical reference for the cultural revitalization and commercial transformation of similar industrial heritage districts.

Keywords: Wine City industrial heritage district, cultural-tourism integration, consumption upgrading, business-format restructuring, coupling mechanism.

Introduction

As a convergence field of brewing technological relics and regional cultural symbols, the Wine City industrial heritage district faces the disordered coupling dilemma between consumption upgrading and business-format restructuring under the drive of cultural-tourism integration. The dilution of cultural symbols, the rupture of spatial narrative, and structural frictions that emerge during the transformation process constrain the improvement of consumption levels and cause the blockage of business-format iteration. Analyzing the sources of tension and the mechanisms of adaptive blockages between the two, and constructing an ecological path for collaborative breakthrough, have become the core issue in the study of industrial heritage revitalization. This paper proceeds along three progressive dimensions, namely cultural-tourism value, business-format adaptive tensions, and coupling reconstruction strategies, and aims to clarify the logical mechanism through which consumption upgrading and business-format restructuring move from opposition to mutual promotion.

1. Cultural-tourism value dimensions and consumption upgrading triggering mechanisms of the Wine City industrial heritage district

1.1 Translation of wine cultural symbols in industrial heritage and regeneration of the spirit of place

The Wine City industrial heritage district carries the unique material relics and production memories of the brewing industry, and its spatial forms, equipment components, and technological processes constitute a recognizable wine cultural symbol system. Through the translation mechanism

from the perspective of semiotics, industrial elements such as fermentation tanks, cellar clusters, and filling lines are abstracted into cultural signifiers with narrative capacity, and this process endows the physical space, originally serving production logic, with cultural added value at the symbolic level. This translation is not a mere appropriation of symbols; rather, by means of the inherent materials, scales, and lighting atmospheres of the place, it reconstructs the regional identification characteristics of wine culture, thereby stimulating emotional connections with the brewing tradition at the level of consumer perception. The translation process involves multiple encoding levels: the industrial texture at the material level provides tactile authenticity, the technological process at the operational level is transformed into observable ritualistic behaviors, and the fermentation aroma at the olfactory level becomes a non-visual symbol that awakens memory; these three jointly construct the gestalt structure of wine cultural perception.

The regeneration of the spirit of place depends on the regulation of the tension between the authenticity of industrial heritage and the demands of experience consumption. The spatial structure of the Wine City industrial heritage district originally followed the logic of maximizing production efficiency, and its enclosure, sequentiality, and functional zoning are naturally separated from leisure consumption scenes. By preserving the original state of key production nodes and simultaneously embedding immersive wine culture exhibition and tasting modules, the place is transformed from a "container of production" to a "field of experience." During this process, the rough texture of industrial buildings and the delicate narrative of wine culture form a contrastive fusion, generating a new type of place atmosphere that is neither pure heritage preservation nor complete commercialization, and this lays the spatial cognitive foundation for consumption upgrading. The core of this new atmosphere lies in "controllable roughness"—retaining the historical traces of mottled walls and rusted pipes, while at the same time creating a suitable consumption micro-environment through temperature control, lighting, and soundscape design, so that consumers can obtain a balanced experience between historical authenticity and physical comfort^[1].

1.2 Multidimensional demand hierarchy of consumption upgrading and the threshold of the experience economy

Consumption upgrading in the context of the Wine City industrial heritage district manifests as a transition from functional consumption to symbolic and emotional consumption. According to the hierarchy of needs theory, once basic material satisfaction is achieved, consumers' demand for cultural uniqueness, identity, and social value increases significantly. The historical authenticity provided by industrial heritage is highly compatible with such higher-order needs, and its unreplicable traces of time, together with the craftsmanship attributes of the brewing process, jointly constitute scarce symbolic capital. This capital translates into a willingness to pay a premium in consumer behavior, thereby driving the consumption structure of the district to shift from low-value-added retail to high-value-added cultural experiences.

The definition of the experience economy threshold serves as the benchmark parameter for determining whether consumption upgrading has substantially occurred. Within the Wine City industrial heritage district, the sign of threshold breakthrough lies in the consumer's shift from passively receiving services to actively participating in meaning construction. When wine tasting activities are no longer merely gustatory stimuli but are interwoven with brewing spaces, time imprints, and craft stories to form a multi-sensory narrative, the experience then transcends the scope of utility calculation and enters a state where aesthetics and memory are superimposed. The attainment of this threshold requires that the experience density provided by the supply side (the variety and intensity of cultural stimuli per unit of space) matches the cognitive load of consumers, and an excessively high density leads to information redundancy, while an excessively low density reverts the scene to ordinary leisure settings. The contextualized experience design based on the in-depth development of wine culture is precisely the technical core for precisely regulating this threshold.

1.3 The overlapping logic of emotional consumption and spatial narrative in the context of cultural-tourism integration

The essence of cultural-tourism integration lies in transforming cultural resources into consumable emotion-driven symbols, and the spatial narrative of the Wine City industrial heritage district provides the material carrier for this process. The triggering of emotional consumption depends on the correspondence between narrative rhythm and spatial sequence: the rough industrial feel in the entrance area produces a defamiliarization effect, the display of brewing techniques in the middle section

stimulates cognitive interest, and the tasting and purchasing area at the end completes emotional closure and value realization. This kind of narrative spatial arrangement enables consumers to experience emotional curve fluctuations during physical movement, thereby elevating a mere sightseeing activity into a cultural journey with memory anchors. The waveform design of the emotional curve needs to conform to the natural law of attention decay—high-density novelty stimuli should be arranged within the initial 15 minutes, followed by rhythmic relaxation zones to sustain interest, so as to avoid sensory fatigue and cognitive overload caused by continuous high-density stimulation.

The core of the overlapping logic lies in the two-way adaptation between emotional consumption demands and the grammar of spatial narrative. On the one hand, spatial narrative must organize the circulation routes and nodes according to the intrinsic logic of wine culture (raw materials—fermentation—distillation—aging—tasting), so as to avoid cognitive loss caused by narrative rupture; on the other hand, the immediacy of emotional consumption and the need for social sharing require that the narrative be embedded with participatory interactive nodes, such as customized blending, jar-sealing ceremonies, or tipsy photography spots. The overlapping of the two is not a linear superimposition; rather, through the alternating design of "narrative density zones" and "emotional release zones" in space, a rhythmic flow of consumption experience is formed. Within the specific field of the Wine City industrial heritage district, the temporality of the brewing process (fermentation cycles, aging periods) and the rhythmic length of spatial narrative mirror each other, ultimately generating an emotional consumption model that differs from ordinary cultural-tourism districts and possesses a sense of temporal continuity^[2].

2. Structural tensions and adaptive blockages between business-format restructuring and heritage space preservation

2.1 Functional replacement inertia and mismatch risks from production relics to consumption scenes

The original function of production relics serves material flow and process connection, and their spatial scales, load-bearing capacities, and pipeline layouts are all designed based on equipment operation rather than crowd gathering. When such relics are replaced with consumption scenes, the functional inertia manifests as the resistance of the building itself to new types of use: the sound reverberation caused by large-span factory buildings interferes with social atmosphere, the narrow dimensions of vertical transport channels restrict crowd evacuation, and the industrial anti-slip properties of floor materials conflict with the aesthetic demands of commercial spaces. This inertia is not a physical impossibility of transformation, but rather a deep misalignment between spatial logic and behavioral logic, which makes the insertion of consumption functions require additional technical correction costs.

The mismatch risks are mainly manifested in the semantic confusion between consumer behavior and spatial prototypes. If the brewing workshop is preserved in too complete a state, consumers tend to fall into the cognitive framework of "visiting a production site," which reduces their emotional acceptance of commercial services; conversely, if the transformation is excessive, the identifiable value of the industrial heritage is lost, and the place degenerates into a clone of generic commercial districts. A more concealed risk comes from the interference between the idle state of equipment and facilities and consumer circulation routes: abandoned fermentation tanks occupy core display positions but cannot participate in the consumption process, and pipeline systems fragment spatial continuity but cannot be removed due to preservation requirements. This mismatch causes a reduction in sales efficiency per unit area of commercial spaces and a rupture in heritage narrative, thereby forming a negative feedback loop between business-format configuration and spatial potential.

2.2 The dilemma of spatial sequence rupture and deviation from cultural continuum in business-format iteration

Spatial sequence is the cognitive skeleton through which consumers perceive the integrity of the district, and its constituent elements include entrance guidance, path turns, nodal climaxes, and exit closure. During the process of business-format iteration, the entry of commercial brands from different periods brings about a tendency toward differentiation in renovation and decoration, and each business entity tends to redefine its interface style and spatial occupation mode according to its own brand image.

When there is a lack of coordinated spatial language among various business-format units, the originally continuous industrial spatial sequence is cut into fragmented consumption islands, and the linear or grid-like heritage texture unique to the Wine City is thereby deconstructed.

The cultural continuum emphasizes the continuity and traceability of wine culture in material space, and its rupture manifests as the spatial misalignment between process logic and commercial logic. The process of "raw material processing—fermentation—distillation—storage—filling" in brewing has a clear temporal sequence, and this sequence is projected in industrial production as the spatial front-back organizational relationships. If business-format iteration does not respect this implicit order, for example, by placing light dining in the distillation workshop area or introducing fast-fashion retail into the wine storage zone, it causes a logical disruption in the cultural narrative. When consumers move through the space, they cannot establish a correspondence with the cognitive schema of brewing, and the cultural continuum is thus forcibly severed by commercial logic, so that the heritage space can no longer fully convey the temporality and the dignity of craftsmanship inherent in wine culture^[3].

2.3 Interactive friction interfaces between wine cultural narrative capital and immersive consumption modes

Wine cultural narrative capital refers to the symbolic reserve system composed of brand history, brewing techniques, regional legends, and object aesthetics, and its value lies in providing meaning anchors for consumer behavior. The immersive consumption mode requires consumers to enter a high-concentration, low-external-disturbance experiential state, thereby amplifying emotional investment and willingness to pay. When the two meet in the Wine City industrial heritage district, friction interfaces arise from the mismatch between the density distribution of narrative capital and the rhythm of immersion. Excessively high capital density (with too much historical information presented simultaneously) increases cognitive load and undermines the flow conditions necessary for immersion, while excessively low density renders the immersive experience lacking in cultural depth and degenerates into an empty cycle of sensory stimulation.

More specifically, the friction occurs at the level of interaction between narrative media and spatial materials. Wine cultural narrative capital is typically conveyed through graphic displays, digital projections, or audio guides, whereas immersive consumption modes rely more heavily on atmosphere creation (lighting, temperature, odor, and soundscape) and behavioral design (cocktail-making participation, tasting rituals). When textual narrative excessively intrudes upon sensory atmosphere, consumers' attention constantly switches between cognitive reading and bodily sensation, resulting in experiential fragmentation. Conversely, if the immersive design completely dissociates itself from narrative capital and relies solely on audio-visual and lighting effects to create a tipsy atmosphere, the uniqueness of the Wine City industrial heritage is diluted into a generic entertainment space. This friction interface essentially reflects the incommensurability between the two paths of experience acquisition, namely symbolic encoding and bodily perception, and it requires a compromising translation strategy to be sought in spatial interface design.

3. Collaborative paths and ecological reconstruction strategies for coupled breakthrough

3.1 Topological model of business-format symbiotic network based on cultural resonance

Cultural resonance refers to the synchronized response formed between consumption subjects and the heritage space at the level of meaning perception, and its occurrence depends on the consistent expression of wine cultural genes across different business formats. The topological model of business-format symbiotic network treats each commercial unit as a network node, and the connection strength between nodes is determined by the degree of shared cultural motifs. If business formats such as brewing process displays, wine-related cultural and creative retail, themed dining, and micro-brewing experience workshops refer to each other in narrative themes, they form a closed semantic loop, and the cultural information that consumers obtain at any node can enhance their depth of understanding and willingness to explore other nodes. This topological structure differs from traditional linear commercial circulation by adopting a networked connection mode, allowing consumers to independently weave their experience paths according to their interests and preferences.

The operationalization of the model requires the introduction of the cultural resonance coefficient as a quantitative reference for business-format configuration. This coefficient is synthesized from three dimensions, namely symbol overlap degree, narrative coherence, and spatial proximity, and

business-format combinations with high resonance coefficients exhibit mutual customer flow diversion and experience value addition effects. In the context of the Wine City industrial heritage district, supply chain relationships, such as the linkage between derivative product development from brewing by-products and main product display, can also be converted into the basis for cultural resonance. Once the business-format network forms a stable resonance structure, the consumption popularity of a single business format no longer fluctuates in isolation; instead, it forms multi-directional transmission within the network, and the overall consumption curve tends to flatten out. The establishment of this topological model elevates business-format restructuring from functional filling to systematic design, thereby providing a structural foundation for the coupled breakthrough^[4].

3.2 Feedback closed-loop operation mechanism of consumption level escalation feeding back into heritage activation

Consumption level escalation refers to the hierarchical leap from basic satisfaction-oriented consumption to symbol-embedded and identity-oriented consumption, and its occurrence depends on the scarce cultural capital provided by the Wine City industrial heritage. When consumers complete the escalation in the district, their payment behavior not only exchanges for goods or services, but also exchanges for a sense of cultural belonging and social identification markers. This escalation result directly raises the unit-space output value of the district, and provides an economic surplus beyond routine maintenance costs for heritage activation. The core mechanism of the feedback closed-loop lies in the fact that the high value-added revenue generated by the escalated consumption behavior is directed into protective restoration and in-depth cultural exploration of the heritage itself, so that the authenticity and narrative thickness of the heritage are further enhanced, thereby attracting the continuous occurrence of higher-level consumption behaviors.

The operation of the closed-loop requires the coupled support of two conditions, namely the traceable allocation of revenue and the iterative accumulation of consumer cognition. The former requires that the district's operation entity establish a special revenue pool for heritage preservation, and separate the premium portion derived from cultural experience consumption (such as tasting courses, customized jar-sealing ceremonies, and cultural guided tours) from the revenue generated by ordinary retail, so as to ensure that the activation funds have a stable source. The latter manifests as the gradually accumulated reserve of wine cultural knowledge that consumers build up through repeated visits, and each upgrade in consumption level is built upon the cognitive increment obtained from the previous experience. Once this feedback closed-loop forms a self-sustaining operation, heritage activation no longer relies on external resource input, but becomes embedded in the dynamic mechanism of the consumption system, and consumption upgrading and heritage preservation thus move from opposition to mutual promotion.

3.3 Nonlinear coupling between the heritage field and the consumption ecosystem and the path of interface reconstruction

Nonlinear coupling refers to the fact that the physical parameters and cultural meanings of the heritage field do not exhibit a simple linear relationship with the economic logic and experiential demands of the consumption ecosystem; rather, they manifest threshold effects and catastrophic characteristics. In the Wine City industrial heritage district, when the consumption density falls below a certain limit, the preservation state of the heritage is almost unaffected by commercial activities; however, once the consumption density exceeds the critical value, pedestrian loads and spatial renovation pressures may cause irreversible damage to the heritage itself. Conversely, in the early stage of deepening cultural excavation, the marginal benefit of consumption stimulation increases, but after reaching a specific threshold, marginal diminishing returns or even consumer fatigue may occur. Recognizing and managing these nonlinear relationships is the prerequisite for achieving benign coupling^[5].

The path of interface reconstruction redesigns the contact surfaces between the heritage space and the consumption system in order to avoid adverse nonlinear catastrophic changes. At the physical interface, reversible commercial insertion components — namely, light-intervention devices such as modular retail units and suspended experience pods that are structurally independent of the heritage itself — are adopted to isolate the loads of consumption activities from the heritage structure. At the information interface, a hierarchical release mechanism for wine cultural narrative is established, which dynamically adjusts the information density according to consumers' dwell time and cognitive load, thereby preventing the decline in marginal perception caused by overexposure of narrative capital. At

the organizational interface, a cultural adaptability assessment process for business-format admission is constructed, which rejects high-profit business formats unrelated to the wine cultural motif in order to prevent heterogeneous components of the consumption ecosystem from undermining the coupling stability. Through the systematic reconstruction of multiple interfaces, the heritage field and the consumption ecosystem shift from simple coexistence to organic integration, ultimately forming a new type of district organization that not only preserves the authenticity of the industrial space but also supports the sustained release of consumption vitality.

Conclusion

Consumption upgrading and business-format restructuring in the Wine City industrial heritage district are not isolated linear processes; rather, they are intertwined and mutually constraining coupling systems within the context of cultural-tourism integration. Through analysis, it is evident that the translation of wine cultural symbols and the regeneration of the spirit of place provide the spatial cognitive foundation for consumption upgrading, while the hierarchical transition of demand and the breakthrough of the experience economy threshold establish the direction of consumption transformation; at the same time, the inertia of functional replacement of production relics, the deviation between spatial sequence and cultural continuum, and the friction interfaces between narrative capital and immersion modes collectively constitute the structural blocking factors that constrain the healthy iteration of business formats. The key to resolving this dilemma lies in establishing a business-format symbiotic network based on cultural resonance, forming a feedback closed-loop in which consumption level escalation feeds back into heritage activation, and achieving the organic integration of the heritage field and the consumption ecosystem through nonlinear coupling management and multi-interface reconstruction. Future research may further explore the quantitative measurement methods of the cultural resonance coefficient, the dynamic simulation model of the feedback closed-loop, and the comparative analysis among different types of Wine City industrial heritage districts (such as distillation-oriented, fermentation-oriented, and comprehensive types), so as to provide more refined academic support for the instrumentalization and scenario adaptation of this theoretical framework.

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