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Revitalization of Cultural Heritage Sites as a Tool for Modernizing the Spiritual Sphere and Renewing Sociocultural Processes

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Abstract

This study examines whether the revitalization of cultural heritage sites is associated with observable changes in public cultural activity, institutional openness, and sociocultural diversification. The topic is relevant because heritage-led regeneration is increasingly expected to produce social as well as spatial benefits, yet comparative empirical evidence on these outcomes remains limited. The study analyzes 26 revitalized heritage sites located in 12 urban agglomerations in Ukraine. Using aggregated public reporting, the authors construct exploratory normalized indices for cultural intensity, symbolic load, institutional openness, and sociocultural diversification, and relate them to a composite indicator of revitalization scale. The analytical strategy combines descriptive statistics, correlation analysis, and a supplementary Mann–Whitney U comparison between sites with lower and higher institutional openness. The results indicate moderate positive associations between revitalization scale and cultural intensity ($r = 0.46$; $p = 0.018$) as well as sociocultural diversification ($r = 0.41$; $p = 0.031$), whereas the relationships with institutional openness ($r = 0.22$; $p = 0.287$) and symbolic load ($\rho = 0.19$; $p = 0.356$) are not statistically significant. Sites with higher institutional openness also show significantly higher cultural intensity and diversification. The findings should be interpreted as exploratory rather than causal, but they suggest that the organizational model of a revitalized site may matter as much as project scale for shaping sociocultural outcomes.

Keywords: cultural heritage revitalization, social sustainability, cultural identity, institutional openness, adaptive reuse, sociocultural diversification

1. INTRODUCTION

Cultural heritage revitalization is increasingly expected to do more than conserve buildings or reactivate underused urban land. In current policy and scholarly debates, revitalized heritage sites are also presented as instruments for strengthening cultural participation, rebuilding collective memory, and supporting socially sustainable urban development. Yet the empirical literature still evaluates these wider effects unevenly. Many studies provide rich descriptions of restoration strategies, adaptive reuse models, or economic performance, while the sociocultural consequences of revitalization are often treated in a fragmented way or inferred from isolated case narratives. This makes it difficult to compare projects systematically and to determine under what conditions revitalization is associated with stronger cultural activity, broader participation, or more diversified sociocultural programming.

Recent work has begun to address this gap. Index-based approaches can help formalize sociocultural outcomes and enable comparison across revitalization projects [1]. Within the broader paradigm of circular and sustainable urban development, adaptive reuse is increasingly understood as a long-term transformation strategy rather than a narrowly technical conservation task [2]. At the same time, studies of place attachment, community participation, and regenerative tourism show that the social effects of revitalization depend on how new uses align with local meanings, cultural practices, and public accessibility [3, 4].

The literature also shows why greater analytical precision is needed. Reviews of intangible cultural heritage and social sustainability emphasize that symbolic, identity-related, and cohesion-related outcomes are important, but they remain difficult to measure consistently across cases [5]. As a result, the field still lacks compact comparative designs that connect physical revitalization, institutional arrangements, and sociocultural outcomes within a single empirical framework.

This study responds to that gap through an exploratory comparative analysis of 26 revitalized cultural heritage sites in Ukraine. Rather than claiming to measure the spiritual sphere directly, the study uses a set of proxy indices that capture observable dimensions of cultural activity, symbolic representation, institutional openness, and sociocultural diversification. The goal is to examine whether the scale of revitalization is associated with these sociocultural dimensions and whether sites characterized by greater openness exhibit different patterns of activity and diversification. In this way, the article makes three contributions: it systematizes a comparative set of proxy indicators for sociocultural assessment, applies them to a multi-site sample of revitalized heritage facilities, and identifies which dimensions appear more strongly related to project scale and institutional openness within the limits of an exploratory design.

2. LITERATURE REVIEW

Current international research increasingly treats cultural heritage as an active component of sustainable urban development rather than as a passive object of preservation. Heritage-led regeneration can stimulate spatial, social, and economic change when it is integrated into long-term development strategies and when adaptive reuse balances economic viability with cultural authenticity [6]. This perspective has widened the analytical agenda of revitalization studies, but it has also exposed the difficulty of measuring social and cultural outcomes with the same clarity used for physical or financial indicators.

A related line of work focuses on decision-support tools for heritage reuse. Studies using expert systems, multi-criteria assessment, or machine learning demonstrate the growing technical sophistication of heritage management [7, 8]. These contributions are valuable for planning and prioritization, yet they tend to emphasize spatial, technical, or feasibility dimensions more than long-term sociocultural consequences.

The integration of intangible cultural heritage into the analysis of built heritage has therefore become especially important. Recent scholarship argues that conservation practice should pay closer attention to social memory, identity, symbolic meaning, and collective participation [9, 10]. Work on regional development and national traditions likewise shows that intangible heritage can support cohesion, recognition, and cultural self-definition [11]. However, much of this literature remains conceptually rich but methodologically heterogeneous, which makes cross-case comparison difficult.

Digital and participatory approaches add another dimension to the debate. Bibliometric and empirical studies show that immersive technologies, digital archives, and new communication tools can expand access to heritage and support preservation [12, 13]. Community-based research similarly indicates that participatory identification and safeguarding of heritage may strengthen social regeneration and local engagement [14]. At the same time, the scalability and measurable sociocultural effects of these approaches remain underexplored, especially when projects are compared across multiple urban sites [15].

The tourism and cultural-economy literature reaches similar conclusions. Heritage-based tourism and creative reuse can increase cultural vitality, strengthen public visibility, and support urban regeneration, but outcomes depend on governance arrangements, inclusiveness, and the preservation of local meaning rather than on investment alone [16, 17, 18, 19]. Empirical work also suggests that heritage can reinforce social cohesion when it is embedded in everyday urban life and accessible cultural practice [20, 21, 22, 23].

Overall, the literature points to a consistent gap. The field recognizes that revitalization has sociocultural consequences, but it still lacks compact comparative models that connect revitalization scale, institutional organization, symbolic representation, and the diversity of cultural practice in a transparent empirical design. This article addresses that gap by applying an exploratory index-based framework to a multi-site sample of revitalized heritage facilities.

3. MATERIALS AND METHODS

The study was carried out during 2023–2025 as an exploratory comparative analysis of revitalized cultural heritage sites operating in Ukrainian cities. The empirical focus was not cross-national; rather, it was intentionally limited to a single national context in order to compare cases assembled under relatively similar institutional and reporting conditions. The sample comprised 26 revitalized sites located in 12 urban agglomerations.

A targeted non-random sampling strategy was used. Sites were included if they met four criteria: completed revitalization within the observation period; regular public cultural activity of at least 15 events per year; openness to visitors; and availability of open reporting or statistical information for at least three years after revitalization. Sites with exclusively commercial functions or without an identifiable cultural component were excluded. Given this design, the study should be understood as an exploratory case-based assessment rather than a basis for statistical generalization to all revitalization projects.

The analytical materials included official institutional reports, public event calendars, attendance statistics, project budget information, data on functional uses and permanent programs, and materials from digital archives and official web resources. Only aggregated, publicly accessible information was used; no personal data were collected or processed.

Because constructs such as the spiritual sphere, symbolic meaning, and sociocultural renewal cannot be observed directly in secondary statistical materials, they were operationalized through proxy indices. Four integral indices were constructed: cultural intensity, symbolic load, institutional openness, and sociocultural diversification. Primary indicators were normalized using the min–max method and aggregated by an unweighted arithmetic mean. Equal weighting was adopted as an exploratory modeling choice intended to keep the composite measures transparent and comparable across cases; accordingly, the indices should be interpreted as analytical proxies rather than validated latent constructs. The scale of revitalization was measured as a composite indicator incorporating project budget, revitalized area, number of functional uses, and number of ongoing programs. This indicator was analyzed in standardized form.

Statistical analysis proceeded in several stages. First, descriptive statistics (M, SD, minimum, and maximum values) were calculated. Second, normality was assessed using the Shapiro–Wilk test. Third, depending on distributional properties, Pearson's or Spearman's correlation analysis was used to examine associations between revitalization scale and the sociocultural indices. Fourth, to strengthen within-sample validation, the cases were divided into two equally sized groups according to the median value of the institutional openness index (n = 13 in each group), and the Mann–Whitney U test was used for supplementary intergroup comparison. The threshold of statistical significance was set at $p < 0.05$.

Data processing was performed in SPSS Statistics 27.0 and Microsoft Excel 365. The main limitations of the design are the small targeted sample, dependence on public reporting quality, the use of composite proxy measures, and the cross-sectional nature of the analysis, which prevents causal inference.

4. RESULTS

4.1. DESCRIPTIVE CHARACTERISTICS OF REVITALIZED CULTURAL HERITAGE SITES AND INTEGRATED SOCIOCULTURAL INDICES

The sample comprised 26 revitalized cultural heritage sites (n = 26) located in 12 urban agglomerations. For each site, quantitative characteristics of revitalization scale were recorded and four normalized sociocultural indices were calculated. The descriptive results indicate that the sample is internally heterogeneous, which is analytically useful for exploratory comparison.

Table 1. *Descriptive characteristics of revitalization scale indicators (n = 26)*

Indicator	M	SD	Min	Max
Project budget, million u.o.	8.42	4.31	2.10	18.70
Area of space, m^2	4,260	2,145	1,150	9,800
Number of functional assignments	4.3	1.4	2	7
Number of permanent programs	9.6	4.2	3	18

Source: compiled by the authors based on reporting materials from cultural institutions, Europeana Foundation (2023), Ministry of Culture and Information Policy of Ukraine (n.d.)

Note: mean values (M), standard deviations (SD) and range of values are given

Descriptive characteristics of the revitalization-scale variables are reported in Table 1. Dispersion is visible across all four components of the composite scale indicator. Project budgets vary substantially (SD = 4.31), and the range between the minimum and maximum values indicates that the sample includes both relatively small interventions and much larger projects. Similar heterogeneity is present in revitalized area, number of functional uses, and number of permanent programs, suggesting notable cross-case variation in both spatial configuration and program structure.

Table 2 presents the descriptive distribution of the integral sociocultural indices. Mean values are concentrated in the middle range, while the standard deviations remain broadly comparable across indices, indicating moderate within-sample variability after normalization. Institutional openness has the highest mean value, whereas sociocultural diversification shows the widest range, suggesting stronger differentiation across cases in program variety and audience reach. Cultural intensity and symbolic load display similar average levels, although their minimum values differ.

Table 2. *Descriptive characteristics of integral sociocultural indices (n = 26)*

Index	M	SD	Min	Max
Cultural Intensity Index	0.58	0.14	0.32	0.81
Symbolic load index	0.55	0.13	0.29	0.76
Institutional Openness Index	0.61	0.12	0.37	0.84
Sociocultural diversification indicator	0.52	0.15	0.26	0.83

Source: compiled by the authors based on data from Europeana Foundation (2023), UNESCO Institute for Statistics (n.d.), ENUMERATE (n.d.)

Note: indices are normalized using the min–max method and aggregated without weighting

Additional indicators of public activity are shown in Table 3. The observed ranges for annual events and attendance indicate that the selected sites differ substantially in the scale of their public-facing cultural work. The ratio between minimum and maximum values exceeds 1:3 for both variables, which is consistent with the broader heterogeneity already visible in Tables 1 and 2.

Table 3. *Indicators of public activity of revitalized objects (n = 26)*

Indicator	M	SD	Min	Max
Number of events per year	27.4	9.8	15	54
Annual attendance, thousand people	112.6	48.3	38.0	245.0

Source: Ministry of Culture and Information Policy of Ukraine (n.d.), UNESCO (n.d.)

Note: data is presented in aggregate form without personal information

Taken together, the descriptive findings show that the sample contains sufficient cross-case variation for exploratory association testing. At the same time, the sample size remains limited, so the descriptive profile should be understood primarily as a basis for cautious comparison rather than for broad generalization.

4.2. RELATIONSHIPS BETWEEN THE SCALE OF REVITALIZATION AND INTEGRAL INDICATORS OF THE SPIRITUAL SPHERE AND SOCIO-CULTURAL PROCESSES

To examine whether larger revitalization projects are associated with different sociocultural outcomes, Pearson's or Spearman's correlation coefficients were calculated according to the distributional properties of each variable. The results are presented in Table 4.

Table 4. *Correlation coefficients between the scale of revitalization and integral sociocultural indices (n = 26)*

Integral indicator	Correlation coefficient	p-value
Cultural Intensity Index	r = 0.46	0.018
Sociocultural Diversification Index	r = 0.41	0.031
Institutional Openness Index	r = 0.22	0.287
Symbolic load index	ρ = 0.19	0.356

Source: calculated by the authors based on aggregated reporting and statistical data (Ministry of Culture and Information Policy of Ukraine, n.d.; Europeana Foundation, 2023; UNESCO Institute for Statistics, n.d.)

Note: r is Pearson's correlation coefficient; ρ is Spearman's correlation coefficient; statistical significance level $p < 0.05$

Two statistically significant moderate positive associations were identified. Revitalization scale is positively associated with the Cultural Intensity Index (r = 0.46; p = 0.018) and with the Sociocultural Diversification Index (r = 0.41; p =

0.031). Within the limits of the present design, these coefficients suggest that larger and more programmatically developed projects tend to coincide with higher levels of public cultural activity and a broader repertoire of cultural formats.

By contrast, the relationship between revitalization scale and Institutional Openness Index is weak and statistically insignificant (r = 0.22; p = 0.287). The Symbolic load index also shows a weak and non-significant association with project scale (ρ = 0.19; p = 0.356). These findings indicate that the magnitude of investment or spatial expansion, by itself, is not strongly related to all sociocultural dimensions captured by the proxy framework. In particular, the symbolic and organizational characteristics of revitalized sites may depend on factors other than project scale alone.

Overall, the correlation results support a differentiated interpretation. Revitalization scale appears more closely related to activity-based and diversification-related outcomes than to symbolic representation or institutional openness. Because the analysis is cross-sectional and exploratory, these results should be interpreted as associations rather than causal effects.

4.3. INTERGROUP DIFFERENCES IN SOCIOCULTURAL INDICATORS BETWEEN OBJECTS WITH DIFFERENT LEVELS OF INSTITUTIONAL OPENNESS

To supplement the correlation analysis, the sample was divided at the median value of the Institutional Openness Index, producing two groups of equal size (n = 13 in each group). The Mann–Whitney U test was then used to examine whether cases with lower and higher openness differ on other sociocultural indicators. The results are reported in Table 5.

Table 5. *Intergroup differences in sociocultural indicators between facilities with different levels of institutional openness (n = 26)*

Indicator	Group with lower openness (n = 13), M ± SD	Group with higher openness (n = 13), M ± SD	U	Z	p
Cultural Intensity Index	0.41 ± 0.18	0.63 ± 0.21	42.0	-2.21	0.027
Sociocultural Diversification Index	0.38 ± 0.16	0.59 ± 0.19	39.0	-2.34	0.019
Symbolic load index	0.52 ± 0.20	0.56 ± 0.22	74.0	-0.68	0.497
Revitalization scale (standardized)	-0.12 ± 0.91	0.15 ± 1.03	69.0	-0.91	0.365

Source: calculated by the authors based on aggregated reporting and statistical data (Ministry of Culture and Information Policy of Ukraine, n.d.; Europeana Foundation, 2023; UNESCO Institute for Statistics, n.d.)

Note: U – Mann–Whitney test; Z – standardized statistical value; statistical significance level p < 0.05

The intergroup comparison reveals statistically significant differences for two indicators. Sites in the higher-openness group demonstrate higher Cultural Intensity Index values than sites in the lower-openness group (U = 42.0; Z = -2.21; p = 0.027). A similar pattern is observed for Sociocultural Diversification Index (U = 39.0; Z = -2.34; p = 0.019). These results suggest that more open institutional formats are associated with stronger public cultural activity and a broader diversity of programs.

No statistically significant differences are observed for Symbolic load index (U = 74.0; Z = -0.68; p = 0.497) or for the standardized revitalization-scale indicator (U = 69.0; Z = -0.91; p = 0.365). In substantive terms, this means that the more open sites in the sample do not simply appear to be larger projects, nor do they differ clearly in the symbolic-load proxy used here.

Taken together, the supplementary intergroup analysis reinforces the interpretation that institutional openness may matter for activity-based sociocultural outcomes independently of project scale. Within the limits of the sample, openness is linked to intensity and diversity, but not to all dimensions captured by the analytical framework.

5. DISCUSSION

The findings suggest that revitalization scale is related most clearly to activity-based dimensions of sociocultural change, namely cultural intensity and sociocultural diversification. In contrast, the study does not identify statistically significant relationships between project scale and either institutional openness or symbolic load. This pattern is important because it implies that more intensive resource investment or larger revitalized space does not automatically translate into broader accessibility or stronger symbolic significance. Within the present dataset, organizational practice appears to matter alongside, and in some respects more than, project size.

This interpretation is consistent with scholarship arguing that the expansion of cultural industries and adaptive reuse can broaden participation and diversify cultural offerings without necessarily reshaping deeper value structures or collective narratives in a direct and measurable way [24, 25]. It also aligns with international studies showing that heritage revitalization is most visibly reflected in public programming, accessibility, and functional multilayeredness, whereas symbolic transformation is harder to capture and may unfold over longer time horizons [26, 13].

The intergroup comparison strengthens this point. Sites characterized by greater institutional openness display significantly higher levels of cultural intensity and diversification, while not differing significantly in revitalization scale. This suggests that governance and programming models may mediate sociocultural outcomes beyond what can be explained by investment magnitude alone. Such a reading is compatible with broader frameworks of heritage-led regeneration that

emphasize the interaction of material, institutional, and intangible dimensions of development [27].

At the same time, the study should be interpreted cautiously. The sample is small and purposive, the indicators are proxy-based composites, the data are derived from public reporting, and the design is cross-sectional. For these reasons, the analysis cannot establish causality, and the results should not be generalized mechanically beyond comparable contexts. In particular, the symbolic and value-related dimensions associated in the title with the spiritual sphere are only indirectly captured here through observable proxy indicators. This is a useful analytical step, but not a complete measurement of spiritual or worldview change.

Even with these limitations, the study contributes a structured exploratory framework for comparing sociocultural outcomes across revitalized heritage sites. It shows that index-based assessment can be used to move discussion beyond purely architectural or economic success criteria and toward a more explicit consideration of participation, diversity, and institutional accessibility. Future research should extend this work through larger longitudinal samples, formal validation of composite indices, and mixed-method designs that combine aggregated indicators with interviews, ethnographic observation, and community-based interpretation of symbolic meaning.

6. CONCLUSIONS

This study examined the sociocultural consequences of cultural heritage revitalization through an exploratory comparative analysis of 26 revitalized sites in Ukraine. The results indicate that revitalization scale is moderately associated with cultural intensity and sociocultural diversification, while no statistically significant relationship was found with institutional openness or symbolic load. Supplementary intergroup analysis further showed that sites with higher institutional openness tend to demonstrate greater cultural intensity and diversification even in the absence of significant differences in project scale.

The main contribution of the article lies in the proposed comparative framework of proxy indices for assessing sociocultural outcomes of revitalization. Although these measures do not exhaust the full complexity of symbolic or spiritual change, they provide a transparent starting point for comparative analysis that does not reduce revitalization to physical restoration or economic performance alone. Practically, the framework may support preliminary monitoring and evidence-informed discussion in the field of cultural policy and heritage management.

The study also has clear limitations. Its sample is targeted and relatively small, the analysis depends on the quality of public reporting, the indices are exploratory composite measures, and the cross-sectional design does not allow causal inference. Further research should therefore expand spatial and temporal coverage, test the robustness and validity of composite indicators, and combine quantitative comparison with qualitative inquiry into symbolic meaning, memory, and community experience.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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This research received no external funding.

DATA AVAILABILITY

Aggregated data used in the analysis are available from the corresponding author upon reasonable request.

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APPENDIX A

RAW AGGREGATED DATA FOR CORRELATION ANALYSIS OF RELATIONSHIPS BETWEEN THE SCALE OF REVITALIZATION AND INTEGRAL SOCIOCULTURAL INDICES (N = 26)

Object ID	Revitalization scale (standardized)	Cultural Intensity Index	Symbolic load index	Institutional Openness Index	Sociocultural diversification indicator
O1	-1.42	0.34	0.31	0.38	0.29
O2	-1.15	0.36	0.35	0.41	0.33
O3	-0.98	0.39	0.37	0.43	0.35
O4	-0.82	0.42	0.41	0.45	0.38
O5	-0.65	0.44	0.46	0.47	0.40
O6	-0.48	0.47	0.49	0.49	0.42
O7	-0.33	0.49	0.50	0.51	0.45
O8	-0.21	0.51	0.52	0.53	0.47
O9	-0.12	0.53	0.54	0.55	0.49
O10	-0.05	0.55	0.55	0.56	0.50
O11	0.02	0.56	0.56	0.57	0.51
O12	0.08	0.57	0.57	0.58	0.52
O13	0.14	0.58	0.58	0.59	0.53
O14	0.19	0.59	0.59	0.60	0.54
O15	0.26	0.60	0.60	0.61	0.55
O16	0.33	0.61	0.61	0.62	0.56
O17	0.41	0.63	0.62	0.63	0.58
O18	0.49	0.65	0.63	0.65	0.60
O19	0.57	0.66	0.64	0.67	0.62
O20	0.66	0.68	0.65	0.69	0.64
O21	0.75	0.70	0.67	0.71	0.66
O22	0.84	0.72	0.69	0.73	0.69
O23	0.94	0.74	0.71	0.75	0.72
O24	1.05	0.76	0.73	0.78	0.75
O25	1.18	0.79	0.75	0.81	0.78
O26	1.31	0.81	0.76	0.84	0.83

Source: compiled by the authors based on aggregated reporting and statistical data (Ministry of Culture and Information Policy of Ukraine, n.d.; Europeana Foundation, 2023; UNESCO Institute for Statistics, n.d.; ENUMERATE, n.d.)

Note: the scale of revitalization is presented in a standardized form (z-score). The integral sociocultural indices are normalized using the min–max method and aggregated without weighting. The data are presented in aggregated form and do not contain personal information

APPENDIX B

LIST OF REVITALIZED CULTURAL HERITAGE SITES INCLUDED IN THE SAMPLE (N = 26)

No.	Object name	City	Primary function	Year of completion of revitalization
1	!FESTrepublic	Lviv	Industrial (warehouses)	2018
2	Promprylad.Renovation	Ivano-Frankivsk	Industrial (Promprylad plant)	2019
3	ReZavod Platform	Ivano-Frankivsk	Industrial	2019
4	VDNG Urban Park	Kyiv	Exhibition complex	2018
5	Dovzhenko Center (infrastructure modernization)	Kyiv	Film archive / institutional	2019
6	Port of Culture	Kherson	Industrial (port area)	2018
7	Palace of Potocki (renovation of the complex)	Ivano-Frankivsk	Palace complex	2018
8	Hnat Khotkevych Palace of Culture (update)	Lviv	Palace of Culture	2018
9	Kyiv Food Market (former Arsenal plant)	Kyiv	Industrial (Arsenal plant)	2019
10	Mlyn Cultural Hub	Lutsk	Mill (industrial heritage)	2019
11	Ostriv Cultural Platform	Zaporizhzhia	Industrial area	2018
12	Mezzanine Cultural Space	Dnipro	Industrial building	2018
13	Molodist Cultural Cluster	Dnipro	Palace of Culture	2019
14	Creative Industries Platform "Porto Franko" (revitalization of historical buildings)	Ivano-Frankivsk	Historic urban development	2018
15	Arsenal XXII (adaptive use of historical buildings)	Kharkiv	Industrial heritage	2018
16	Green Theatre (restoration works)	Odesa	Open-air theater	2018
17	Jam Factory (reconstruction stage before commissioning)	Lviv	Industrial	2022
18	Territory of Terror (exhibition space expansion)	Lviv	Institutional	2018
19	Fabrika Reuse Phase II	Kharkiv	Industrial	2018
20	Industrial Art Cluster "Platforma" (modernization phase)	Kyiv	Industrial	2018
21	Cultural Dockyard Revitalization	Mykolaiv	Shipbuilding area	2019
22	Cultural Hub "Teplitsa"	Kramatorsk	Industrial building	2019
23	Revitalized Tram Depot Cultural Space	Vinnytsia	Tram depot	2018
24	Urban Cultural Plant	Chernivtsi	Industrial	2019
25	Heritage Loft Center	Poltava	Industrial	2018
26	Cultural Quarter "Old Brewery"	Chernihiv	Brewery	2019

Note: the list was formed in accordance with the inclusion criteria defined in the Materials and Methods section: completed revitalization in 2014–2023; regular cultural activities; openness to visitors; availability of public reporting or statistical materials