

3D Evaluation Model – Global Architecture And Dimension Weighting

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Abstract— This article presents a unified and operational 3D evaluation framework for live and performative arts that integrates economic, cultural-social and participatory dimensions. Grounded in cultural economics and contemporary international evaluation practices (UNESCO, OECD), the framework reduces methodological fragmentation by proposing a compact set of validated methods (a maximum of two to three per dimension), standardised indicators and anchored scoring rubrics. Each dimension generates a partial score on a 0–100 scale, while the composite 3D score ranges from 0 to 300. The model is implemented through structured scoring rubrics, weighting guidelines based on the Analytic Hierarchy Process (AHP), and reliability-enhancing procedures, including multiple assessors, triangulation and calibration. The article includes a complete methodological appendix with indicator definitions and scoring rubrics, and discusses the applicability of the framework for events, promoters and venues. The framework is designed to meet the standards required for submission to Scopus Q1 journals in the fields of arts research and cultural policy.

Keywords— cultural economics; cultural policy; evaluation; OECD; participatory metrics; performing arts.

I. INTRODUCTION

This document presents the global architecture of the proposed 3D evaluation framework for living culture. The framework integrates three basic dimensions of value creation: economic, cultural-social and participatory. Each dimension is based on internationally recognised methodologies and is in line with UNESCO and OECD evaluation principles.

The evaluation of live cultural activities and cultural events has long been characterised by significant methodological and conceptual plurality. In the professional literature, there are parallel approaches based on economic evaluation and impact studies (Crompton, 2006; Snowball, 2008), frameworks focused on cultural, symbolic and social values (Throsby, 2001; Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016), and models emphasising participation, audience engagement and the broader social effects of cultural activities (O'Brien, 2010; Colombo, 2016). These approaches have tended to accumulate over time rather than being systematically integrated, leading to fragmentation in the field of evaluation and limited comparability of results across studies, contexts and types of actors.

Current research shows that this fragmentation is not only a consequence of methodological inconsistency, but also reflects the very nature of the phenomenon being evaluated. Cultural events and live culture in general represent complex forms of structured gatherings of people, within which economic, cultural, social and behavioural

values are simultaneously generated. These values have different epistemological foundations, different time horizons and different requirements for data and measurement methods (Throsby, 2001; Belfiore & Bennett, 2007). Attempts to reduce them to a single indicator or uniform evaluation logic therefore reach their limits and often lead to results that are difficult to interpret for practice and cultural policy-making.

In recent years, another dimension has been added to this situation with the development of digital data sources and artificial intelligence tools. Digital traces of participation, online interactions and behavioural data significantly expand the possibilities for measuring and analysing cultural activities (Gergaud & Ginsburgh, 2017; Black et al., 2024). At the same time, however, they increase the risk of further fragmentation of the evaluation field if they are not embedded in an explicit conceptual framework. Without a clear definition of what types of values individual indicators represent and how they relate to each other, technological progress may multiply the number of partial metrics rather than contribute to their meaningful interpretation.

The proposed 3D evaluation framework is based on the assumption that the value generated by live cultural activity is inherently multidimensional and that different evaluation perspectives are not interchangeable but complementary. The framework therefore works with an explicit distinction between three basic dimensions – economic, cultural-social and participatory – which correspond to established trends in literature and international evaluation practice (UNESCO, 2009; OECD, 2018). The aim is not to unify these perspectives into a single line of interpretation, but to create a structured architecture that allows for their parallel capture, comparison and transparent presentation.

This approach also opens up space for various analytical ‘slices’ of the evaluation framework. While some parts of the model emphasise standardisation, comparability and aggregation of results, others allow for alternative readings and interpretations based on different theoretical starting points or data sources. The multidimensional architecture of the framework is thus not understood as a closed normative model, but as a flexible evaluation tool capable of reflecting both the technical requirements of measurement and the plurality of meanings and values attributed to cultural activities in different contexts.

It follows from the above theoretical starting points that an evaluation framework focused on live cultural activities must be able to work with multiple parallel dimensions of value without reducing or unjustifiably mixing them. A number of authors point out that the problems of current evaluation lie not only in the lack of data, but above all in the absence of a transparent structure that would allow for the systematic interconnection of different methods and types of indicators (Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016). In this context, the requirement to separate the conceptual level of evaluation (i.e. what is considered to be value) from the level of operationalisation (i.e. how this value is measured) appears to be key.

The proposed 3D evaluation framework reflects this logic through an explicit architecture that distinguishes between different dimensions of value and assigns them a limited number of methodologically verified approaches. This approach is in line with the recommendations of international institutions, which emphasise the need to standardise indicators while maintaining the contextual sensitivity of evaluation (UNESCO, 2009; OECD, 2018). Limiting the number of methods within each dimension also responds to the practical limits of data availability and evaluator capacity and increases the reproducibility of results.

Another important element of the proposed structure is the clear separation of the indicator scoring phase from the aggregation phase. This approach allows for the combination of qualitative judgement with quantitative expression of results and reduces the risk of non-transparent weighting or implicit value judgements, which are often

criticised in traditional economic impact studies (Crompton, 2006). The structure of the 3D model thus does not act as a normative definition of cultural value, but as a methodological tool that allows different interpretative perspectives to be maintained within a unified and comparable evaluation system

II. STRUCTURE OF THE 3D MODEL

The model consists of three dimensions, each of which is implemented through a limited number of methodologically robust evaluation methods (a maximum of three for each dimension). The individual specific indicators set out within the selected methods are always standardised on a scale of 0–100 and aggregated into sub-scores for each dimension. The final 3D score ranges from 0 to 300 points.

The choice of the three basic dimensions of the proposed evaluation framework is based on the long-term development of evaluation approaches in the field of culture and the repeatedly identified limitations of one-sided evaluation models. The economic dimension reflects the tradition of evaluation based on financial performance, efficiency and economic impact, which has a strong position particularly in the context of public funding and regional policy (Crompton, 2006; Snowball, 2008). Although these approaches are methodologically sophisticated, the literature has long pointed to their limited ability to capture non-market and intangible aspects of cultural value (Throsby, 2001; Frey, 2005).

The cultural-social dimension responds to this criticism by incorporating approaches focused on the symbolic, identity and social effects of cultural activity. These aspects are considered key to understanding the broader role of culture in society in the professional literature, but their operationalisation and systematic measurement represent a long-term challenge (Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016). The inclusion of a separate cultural-social dimension therefore does not mean extending economic evaluation with "soft" indicators, but rather recognising a different logic of value that requires its own evaluation tools and interpretative frameworks.

The third, participatory dimension reflects the growing importance of audience and wider public engagement as an integral part of the value of cultural events and institutions. Research in cultural policy and event studies shows that the degree and nature of participation significantly influence the social impacts of cultural activities and their long-term sustainability (O'Brien, 2010; Armbrecht et al., 2017). At the same time, the development of digital platforms and online communication makes it possible to monitor new forms of participation through behavioural and interaction data that complement traditional qualitative approaches (Gergaud & Ginsburgh, 2017; Black et al., 2024).

Separating these three dimensions within a single evaluation model does not imply a hierarchy or normative priority of one over the other. On the contrary, it creates a structure that allows for their parallel capture and transparent aggregation while maintaining the conceptual autonomy of each dimension. This approach is in line with current international recommendations in the field of cultural statistics and evaluation, which emphasise the need for multidimensional frameworks combining economic, social and participatory perspectives (UNESCO, 2009; OECD, 2018).

The selection of a limited number of methods within the individual dimensions of the proposed 3D evaluation framework is based on a combination of theoretical and practical considerations. The professional literature repeatedly points out that attempts to comprehensively capture cultural value through extensive sets of indicators often lead to confusion, limited reproducibility and low usability of results in decision-making practice (Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016). From a methodological point of

view, there are also situations where individual indicators overlap, implicitly duplicating the measured effects or introducing non-transparent weights into the aggregation.

The proposed framework therefore works with the principle of methodological parsimony, i.e. deliberately limiting the number of methods used to a compact set that is capable of representing the key aspects of a given dimension without excessive loss of information. This approach is in line with recommendations in the field of public policy evaluation and cultural statistics, which emphasise the importance of balancing analytical depth and practical feasibility of evaluation tools (OECD, 2018; UNESCO, 2009).

Within each dimension, only methods that meet three basic criteria are selected: (i) theoretical anchoring in existing literature, (ii) empirical verifiability and availability of data in the real conditions of cultural organisations and events, and (iii) the ability to generate results that are interpretable and usable for different groups of actors. Combining more than two or three methods within a single dimension could increase analytical detail, but at the cost of reducing clarity and increasing the demands on data collection and the expert capacity of evaluators.

The chosen approach also allows for flexible work with the framework in different contexts. The limited number of methods facilitates the adaptation of the model to different types of evaluated entities (e.g., one-off events, long-term organisations or venues) and supports the comparability of results across cases. Methodological parsimony is thus not understood as a simplification of complex reality, but as a condition for transparent, reproducible and definitely relevant evaluation.

TABLE I STRUCTURE OF THE 3D MODEL

Dimension	Basic methods	Primary focus	Key references
Economic	1. Financial performance and health indicators 2. Input-output analysis / economic impact 3. Contingent valuation (WTP)	Economic efficiency, sustainability and non-market value of theatre arts	Throsby (2001), Snowball (2008), Crompton (2006), Dwyer et al. (2005), Santagata (2000), OECD (2006)
Cultural and social	1. CIP – perception of cultural impact 2. Culture-specific cost-benefit analysis 3. UNESCO cultural cycle framework	Cultural value, identity, social cohesion, artistic vitality	Colombo (2016), Belfiore & Bennett (2007), Crossick & Kaszynska (2016), UNESCO (2009, 2019)
Participatory	1. Digital participation analysis 2. MSC – most significant change 3. Social return on investment (SROI)	Audience engagement, community impact, social value creation	Matarasso (1997), Brown & Novak-Leonard (2007), Black et al. (2024), OECD & ICOM (20219)

III. WEIGHTING OF INDIVIDUAL DIMENSIONS

Based on UNESCO and OECD recommendations and literature on cultural value (Belfiore & Bennett, 2007; O'Brien, 2010; Crossick & Kaszynska, 2016), the three dimensions are weighted in a way that reflects the multidimensional nature of cultural value creation.

However, by weighting the individual dimensions, methods and indicators defined within them, the evaluation framework enters a phase that is particularly sensitive from a methodological point of view. The professional literature in the field of evaluation repeatedly points out that the aggregation of heterogeneous indicators without explicitly defined weights leads to implicit value judgements that remain hidden from both evaluators and users of the results (Belfiore & Bennett, 2007; O'Brien, 2010). Transparent work with weights is therefore a key prerequisite for the interpretability and legitimacy of evaluation outputs.

The proposed 3D evaluation framework treats weighting as a separate methodological layer that follows the scoring of individual indicators. This separation allows the autonomy of individual value dimensions to be preserved while creating space for flexible adaptation of the framework to different evaluation contexts. In the literature, this approach is recommended especially in situations where qualitative and quantitative approaches are combined or where different types of data and epistemological perspectives are used (OECD, 2018; Saltelli et al., 2010).

Explicit weighting also makes it possible to distinguish between two levels of evaluation: analytical and normative. While the analytical level focuses on capturing the individual aspects of the evaluated phenomenon as accurately as possible, the normative level reflects the preferences of specific actors, institutional goals or the context of cultural policy. By separating weighting from scoring, the framework ensures that these normative choices are not hidden in the construction of the indicators themselves, but are made explicitly and can be subject to discussion or adjustment.

From a methodological point of view, weights can be understood not as a fixed feature of the model, but as a parameter that can be calibrated depending on the purpose of the evaluation and the type of entity being evaluated. This approach is in line with current trends in multi-criteria evaluation and supports the usability of the framework for both comparative analyses and context-specific applications. The weighted 3D model does not aspire to be a universal normative assessment of cultural value, but provides a transparent structure within which different value preferences can be systematically reflected.

TABLE II WEIGHTING OF DIMENSIONS

Dimension	Weight (%)	Justification
Economic	35	Economic sustainability remains essential for policy accountability and legitimacy, but it must be complemented by cultural and participatory dimensions of values.
Cultural and social	35	A fundamental dimension capturing the intrinsic, identity and social values of the performing arts.
Participatory	30	Reflects the growing importance of audience engagement and digital participation in achieving the intended impact.

These weights serve as initial reference values and can be refined through expert assessment and calibration using an analytical hierarchy process (AHP) in empirical applications.

The normalisation and aggregation of indicators are a key step in the construction of multidimensional evaluation frameworks, as they directly influence the interpretability and comparability of results. The professional literature in the field of multi-criteria evaluation and the creation of composite indicators has long pointed out that without explicit normalisation, it is not possible to combine indicators with different scales, units and ranges of values without unintentionally distorting the results (Nardo et al., 2005; Saltelli et al., 2010).

In the context of cultural evaluation, this problem is particularly pronounced, as indicators of an economic nature are combined with indicators based on perception, qualitative assessment or behavioural data (Throsby, 2001; Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016). Normalisation therefore not only fulfils a technical function, but also represents a necessary prerequisite for maintaining the conceptual autonomy of individual dimensions of value. The proposed framework works with normalisation procedures that allow partial results to be transferred to a common interpretative space without flattening their meaning.

The aggregation of normalised results is understood within the 3D model as a gradual composition of partial evaluation perspectives, rather than their replacement by a single synthetic indicator. The literature on composite indices repeatedly warns against the uncritical use of a single aggregate score, which can mask the internal structure of the evaluated phenomenon and lead to erroneous conclusions in decision-making practice (Nardo et al., 2005; Saisana & Tarantola, 2002; Saltelli et al., 2010). For this reason, the results of the 3D framework are primarily interpreted at the level of individual dimensions, while the overall score serves primarily as an orientation and communication tool.

The emphasis on multidimensional interpretation of results is in line with current approaches in cultural policy and the evaluation of public interventions, which emphasise the need to combine analytical accuracy with narrative clarity (O'Brien, 2010; Crossick & Kaszynska, 2016; OECD, 2018). The presentation of results in the form of partial scores and their visualisation allows different user groups – from researchers to cultural managers to policy makers – to work with the data in a way that suits their decision-making needs without suppressing the complexity of the evaluated phenomenon.

The interpretation of the results of multidimensional evaluation requires a different approach than that commonly used in one-sided evaluation models. In the case of the 3D framework, the individual dimensions are not understood as competing indicators of the same value, but as complementary perspectives that capture different aspects of the complex phenomenon being evaluated. The professional literature repeatedly points out that differences between the results of individual evaluation approaches cannot be automatically interpreted as methodological failures, but rather as a reflection of different conceptualisations of value and different analytical goals (Throsby, 2001; Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016).

The proposed framework therefore explicitly works with a plurality of interpretative levels. The economic score provides information on the financial sustainability, efficiency and economic effects of cultural activities, the cultural-social dimension captures meanings, identity links and social impacts, while the participatory dimension reflects the degree and nature of audience and other stakeholder involvement. These outputs are not intended for mechanical comparison or to create a single hierarchical ranking, but for informed reading depending on the purpose of the evaluation and the perspective of the user of the results.

This approach is in line with current trends in cultural policy evaluation, which emphasise the need to distinguish between the analytical, communicative and decision-making functions of evaluation tools (O'Brien, 2010; OECD, 2018). While for some actors, synthetic information on overall performance or development over time may be key, others may work primarily with partial scores or with a detailed structure of results within individual dimensions. The multidimensional architecture of the 3D framework allows for these different uses without having to change the structure of the model itself.

The inclusion of separate chapters devoted to individual dimensions is therefore not merely an elaboration of technical details, but a key interpretative step. Each dimension is further elaborated with regard to its specific logic, types of indicators and available data sources, which allows the reader to understand not only the resulting values, but also their significance and limitations. The following section therefore focuses on the economic dimension of evaluation as the first of the analytical perspectives of the proposed 3D framework.

IV. THE ECONOMIC DIMENSION OF THE 3D EVALUATION FRAMEWORK

The economic dimension is traditionally the most widespread and institutionally anchored approach to the evaluation of cultural activities. In professional literature and in cultural policy practice, economic evaluation has long been associated primarily with the analysis of financial performance, economic impacts and issues of efficiency in the use of public resources (Throsby, 2001; Snowball, 2008; Crompton, 2006). These approaches play a key role, particularly in the context of public funding, regional development and the legitimisation of cultural interventions to the wider public.

At the same time, however, the economic evaluation of culture is the subject of extensive criticism, which points to the methodological limitations of studies of economic impacts, the overestimation of multiplier effects and the reduction of cultural value to market-expressible quantities (Madden, 2001; Crompton, 2006; Frey, 2005). In response to this criticism, a broader concept of economic evaluation is gaining ground in the literature, combining traditional financial indicators with non-market valuation methods and transparent modelling of inputs and outputs (Throsby, 2001; Dwyer et al., 2005; Snowball, 2008).

The proposed 3D evaluation framework reflects this development by understanding the economic dimension not as an exhaustive expression of overall cultural value, but as one of several analytical perspectives focused on issues of financial sustainability, economic effects and non-market economic value. The economic dimension is therefore constructed within the model as a separate, methodologically consistent layer that allows for a comparable assessment of the economic aspects of cultural events and organisations without confusing them with cultural-social or participatory effects.

The inclusion of the economic dimension in this form makes it possible to respond to institutional requirements for economic accountability and to reflect current knowledge of cultural economics, which emphasises the need to combine market and non-market approaches to the valuation of cultural activities (Frey, 2005; Santagata, 2006).

The following section elaborates on the economic dimension through specific methods and indicators that correspond to this broader concept of economic valuation.

The economic evaluation of the live and performing arts has traditionally relied on financial performance indicators and economic impact studies. Although these approaches provide important insights for funders and policymakers, they have also been widely criticised for their methodological limitations and overestimation of impacts (Madden, 2001; Crompton, 2006; Sterngold, 2004). Contemporary cultural economics therefore emphasises the need to combine financial performance indicators with non-

market valuation techniques and transparent modelling of inputs and outputs (Throsby, 2001; Snowball, 2008; Frey, 2005).

In the proposed 3D evaluation framework, the economic dimension is designed to capture both the internal financial sustainability of cultural organisations and the broader economic value generated by live arts activities. The framework deliberately limits the number of evaluation methods used to three, balancing analytical robustness with practical feasibility for events, promoters and venues.

The economic dimension produces a standardised score ranging from 0 to 100. It consists of three methods, each weighted according to its relevance to the evaluation of the live and performing arts:

TABLE III STRUCTURE OF THE ECONOMIC DIMENSION

Method	Description	Weight
Performance and financial stability indicators	Financial sustainability and efficiency	40
Input-output analysis / economic impact	Local and regional economic impacts	35
Contingent valuation / willingness to pay	Non-market economic value	25

A. Performance and Financial Stability Indicators

Performance and financial stability indicators (hereinafter also referred to as “performance standards”) assess the internal economic situation of cultural entities. They are particularly relevant for promoters and operators of permanent facilities, but can also be adapted for assessment at the level of individual events. Key indicators are derived from financial statements and operating data.

1) Indicators: Return on assets (ROA) / Return on equity (ROE); Liquidity ratio; Cost per visitor; Public subsidies per visitor; Revenue per event (performance, day of event, etc.)

2) Evaluation Criteria, Scoring Scale, Standardisation: Each indicator is evaluated using fixed criteria on a five-point scale (2–4–6–8–10). Threshold values are defined in relation to sectoral reference values or historical results.

Example of a scoring scale for the cost per visitor indicator:

2 = significantly above the sector benchmark

4 = above the benchmark

6 = approximately at the benchmark level

8 = below the benchmark

10 = significantly more efficient than the benchmark

B. Input-output Analysis and Economic Impact

Input-output analysis (hereinafter also referred to as the “IO standard”) estimates the direct, indirect and induced economic effects of cultural activities on the local or regional economy (Dwyer et al., 2005; Gergaud & Ginsburgh, 2015). This framework explicitly acknowledges criticism of overestimated multipliers and therefore requires transparent assumptions and conservative parameter selection.

1) Indicators: Direct visitor expenditure; Indirect and induced (multiplied) effects; Effects on employment

2) Evaluation Criteria, Scoring Scale, Standardisation: As in the previous method, each indicator is evaluated using fixed criteria on a five-point scale (2–4–6–8–10). Threshold values are defined in relation to sectoral reference values or historical results.

C. Contingent Valuation and Willingness to Pay

Contingent valuation methods (see also the so-called “WTP norm”) capture non-market economic value by estimating individuals’ willingness to pay for cultural goods and experiences (Cuccia, 2003; Santagata & Signorello, 2000). The WTP method (also referred to as the “WTP norm”) is included in the 3D evaluation framework as a supplementary method, aiming to identify the magnitude of any deviation in the economic value perceived by visitors in relation to the market price.

1) Indicators: Average WTP per visitor; Proportion of respondents with positive WTP; Summary estimate of non-market value

2) Evaluation Criteria, Scoring Scale, Standardisation: Standardisation is again carried out in the same way as in the case of the two methods mentioned above; here, too, each indicator is evaluated using fixed criteria on a five-point scale (2–4–6–8–10). Threshold values are defined in relation to sectoral reference values or historical results.

D. Final Aggregation Within the Economic Dimension

For each method (standard), the scores of the individual sub-indicators are averaged to obtain a gross score at the method level. The gross scores of the individual methods are then normalised on a scale of 0–100 and aggregated into the overall score of the economic dimension (E) using predefined weighting coefficients:

$$E = 0.40 \times \text{performance standard} + 0.35 \times \text{IO standard} + 0.25 \times \text{WTP standard}$$

E. Reliability and Limitations

To increase the reliability of evaluations of cultural events focused on live and performing arts, it is advisable to combine multiple methodological approaches. One key recommendation is to involve multiple evaluators, who can help reduce subjective bias and increase the intersubjective validity of the evaluation. This approach is particularly relevant for art forms whose quality and social contribution are difficult to quantify and heavily dependent on the interpretive framework of individual assessors.

Another important element is data triangulation, in particular the combination of financial data (e.g., costs, revenues, or public support) with the results of questionnaire surveys among visitors or the general public. Linking these sources provides a more comprehensive view of the economic, cultural, and social impacts of the events being evaluated and reduces the risk of one-sided conclusions based on only one type of data. Triangulation thus strengthens the robustness of the evaluation and contributes to a better interpretation of the results in the context of public cultural policies.

When using economic evaluation methods, it is also desirable to perform a sensitivity analysis of key assumptions. This allows verification of how changes in input parameters (e.g., willingness to pay, participation rates, or discount rates) affect the final conclusions. Sensitivity analysis thus increases the transparency of the evaluation and provides contracting authorities and decision-makers with a better overview of the degree of uncertainty associated with the interpretation of results.

The main limitations of cultural event evaluation include, in particular, the limited availability of relevant data for small-scale events, where it is often difficult to obtain a sufficiently large and representative sample of respondents. Another risk is the potential for bias associated with stated preference methods, where respondents may overestimate or underestimate their responses depending on the context of the survey or social expectations. These limitations must therefore be explicitly reflected in the interpretation of the results and taken into account in the final recommendations of the evaluation.

V. CULTURAL AND SOCIAL DIMENSIONS OF THE 3D EVALUATION FRAMEWORK

The cultural-social dimension of evaluation is based on long-standing criticism of reductionist approaches that understand the value of culture primarily through economic indicators. In the fields of cultural studies, cultural policy and cultural economics, it has been repeatedly shown that the significance of cultural activity cannot be adequately

captured through market transactions or economic impacts alone, as a substantial part of its value lies in symbolic, social and identity effects (Throsby, 2001; Belfiore & Bennett, 2007; Holden, 2006).

This line of research emphasises that cultural values are often produced and shared collectively, are context-dependent in nature, and their effects can manifest themselves in the long term. The cultural-social dimension therefore includes aspects related to the creation of meaning, the strengthening of social ties, the promotion of cultural identity and the development of social cohesion, which are considered in the professional literature to be key to understanding the broader social role of culture (Throsby, 2001; Crossick & Kaszynska, 2016).

From a conceptual point of view, it is important to emphasise that cultural-social evaluation does not represent an 'extension' of the economic approach with softer indicators, but a separate evaluation perspective based on a different logic of value. As Belfiore and Bennett (2007) point out, attempts to convert social and cultural effects into economic equivalents can lead to methodological distortions and weaken the interpretative power of the evaluation. Separating the cultural-social dimension therefore makes it possible to preserve the plurality of value frameworks while contributing to the analytical transparency of the entire model.

The inclusion of this dimension in the 3D evaluation framework is also in line with international approaches to cultural evaluation, which emphasise the importance of intangible and social aspects of cultural activity alongside economic indicators (UNESCO, 2009; OECD, 2018). The cultural-social dimension thus serves as a conceptual bridge between economic evaluation and the participatory perspective within the model, without being reduced to a mere supplement to other evaluation and approaches.

A. Perception of Cultural Impact (CIP Method)

The cultural impact perception (CIP) method (Colombo, 2016) operationalises cultural value as a set of perceived impacts experienced by audiences, artists, organisers and local communities. It translates intrinsically qualitative cultural values into a structured and comparable system of indicators. CIP is particularly suitable for the live and performing arts because it captures aesthetic, symbolic and social effects that cannot be adequately expressed by economic indicators alone (Belfiore & Bennett, 2007; Crossick & Kaszynska, 2016; O'Brien, 2010). Within the proposed 3D evaluation framework, CIP represents the basic method of the cultural and social dimension and therefore has the highest weight (40%).

1) CIP Indicators: Aesthetic value; Identity value; Social value; Cultural vitality; Transfer of knowledge and skills

2) Evaluation Criteria, Scoring Scale, Standardisation: The scoring scale generally respects the following levels of assessment (impact): 2 – Very low impact; 4 – Low impact; 6 – Medium impact; 8 – High impact; 10 – Very high impact.

Assessors select one of five fixed qualitative categories for each indicator. The qualitative assessment is then automatically converted into a numerical value, which significantly reduces subjectivity compared to free numerical scoring.

An example of applying the scale to the "Aesthetic value" indicator takes the following specific form:

2 – Very low artistic quality; limited professionalism; no originality

4 – Basic professional level; conventional artistic approach

6 – High-quality professional work; clear artistic concept

8 – Excellent artistic quality; innovative elements

10 – Exceptional artistic value; international-level quality; strong originality

3) Aggregation of the CIP Indicators: The raw score within the CIP assessment method is calculated as the arithmetic mean of the scores of the five indicators: $CIP_{raw} = (s1 + s2 + s3 + s4 + s5) / 5$

The raw score is then normalised on a scale of 0–100: $CIP_{norm} = (CIP_{raw} / 10) \times 100$

Finally, the CIP score is weighted within the cultural and social dimensions: $CIP_{weighted} = 0.40 \times CIP_{norm}$

B. CBA Adapted for the Live and Performing Arts

Another proposed method is Cost-Benefit Analysis adapted to the environment of culture and cultural events, specifically for the live and performing arts (CBA-C). This method replaces abstract value categories with operational, observable and assessable indicators suitable for events, promoters and venues. The aim is to increase usability, transparency and reliability among evaluators, while remaining theoretically grounded in cultural economics and cultural policy evaluation.

Specific sub-indicators are selected within the CBA-C method according to four principles: (1) relevance to the live and performing arts; (2) empirical observability; (3) applicability across events, promoters and venues; (4) compatibility with established scoring (2–4–6–8–10). Each indicator can be assessed using a combination of quantitative data and structured qualitative assessment. Indicators can also be defined at multiple levels, as indicated below.

1) CBA-C Indicators: Existence value (institutional and artistic continuity); Value of the option (future access and availability; Cultural externalities (side effects); Public welfare value (inclusiveness and accessibility); Long-term social benefits (capacity and effects on the ecosystem)

2) Evaluation Criteria, Scoring Scale, Standardisation: The breakdown of individual selected indicators of the CBA-C method is illustrated in the following table.

TABLE IV INDICATORS AND EVALUATION CRITERIA OF THE CBA-C METHOD

Indicator	Operational definition	Data source	Typical values / calculation	Scoring logic (2–4–6–8–10)
Existential value (institutional and artistic continuity)				
Continuity of the artistic programme	Stability and regularity of live artistic activity over time	Programme records, annual reports	Number of performances per year; multi-year continuity	2: one-off / unstable – 10: long-term stable programme
Public recognition of artistic mission	The extent to which the existence of the organisation/event is appreciated by the public	Audience surveys, interviews with stakeholders	Proportion of respondents who appreciate the existence regardless of participation	2: marginal – 10: widely recognised cultural necessity
Value of opportunity (future access and availability)				
Accessibility of future participation	The extent to which the audience perceives future access as available	Audience survey	Degree of agreement with statements about future participation	2: no future relevance – 10: strongly perceived possibility in the future
Intergenerational accessibility	Provision of live arts for different age groups	Programme analysis	Number of formats targeting a	2: narrow – 10: strong intergenerational coverage

			specific age group	
Cultural externalities (side effects)				
Transfer effects of education	Contribution to learning, skills and cultural literacy	Workshops, partnerships, surveys	Number of educational activities per year	2: none – 10: systematic educational role
Local image and branding of the place	Contribution to the cultural image of the city or region	Media analysis, stakeholder survey	Proportion of positive mentions in the media	2: negligible – 10: strong branding effect
Public welfare value (inclusiveness and accessibility)				
Ticket availability	Availability relative to median income	Ticket data, statistics	Ratio of ticket price to median income	2: highly exclusive – 10: widely accessible
Inclusion policy	Measures supporting access for disadvantaged groups	Policy documents	Number of inclusive measures implemented	2: none – 10: comprehensive inclusion strategy
Long-term social benefits (capacity and effects on the ecosystem)				
Support for artistic careers	Contribution to retaining artists and creative work	Contracts, programme data	Share of budget allocated to artists	2: minimal – 10: strong career support
Contribution to the cultural ecosystem	Networking, collaboration and innovation	Partnership records	Number of active partnerships	2: isolated – 10: central ecosystem actor

3) Aggregation of the CBA-C Indicators: All indicators are scored using fixed rubrics (2–4–6–8–10). The indicator scores are averaged within each criterion and then across criteria to obtain CBA_raw. The scores are normalised on a scale of 0–100:

$$CBA_norm = (CBA_raw / 10) \times 100$$

$$CBA_weighted = 0.35 \times CBA_norm$$

C. UNESCO Cultural Cycle Framework

The UNESCO Cultural Cycle Framework provides an internationally recognised structure for evaluating cultural activities across the entire cultural production chain (UNESCO, 2009; 2012; 2019). Within the 3D assessment framework, it ensures international comparability and structural completeness of the cultural and social dimensions. This method has a weight of 25% within this dimension.

1) CBA-C Indicators: Creation; Production; Distribution; Participation

2) Evaluation Criteria, Scoring Scale, Standardisation: The scoring scale generally respects the following levels of assessment (impact):

2 – Very low impact

4 – Low impact

6 – Medium impact

8 – High impact

10 – Very high impact

An example of applying the scale to the “Creation” indicator takes the following specific form:

2 – Minimal support for artistic creation

4 – Limited or sporadic support for creators

6 – Stable support for artistic creation

8 – Strong and systematic support for creators

10 – Strategic and exemplary support for artistic creation

3) Aggregation of the UNESCO cultural cycle framework: The aggregated assessment of the UNESCO cultural cycle framework indicators will be carried out as follows: UNESCO_raw = average of indicator scores; UNESCO_norm = (UNESCO_raw / 10) × 100; UNESCO_weighted = 0.25 × UNESCO_norm.

D. Final Aggregation Within the Cultural and Social Dimension

The cultural and social dimension score (CS; 0-100) aggregates three methods using weighted normalised scores:

$$CS = 0.40 \times CIP_norm + 0.35 \times CBA_norm + 0.25 \times UNESCO_norm$$

This aggregation ensures full comparability with the economic and participatory dimensions, each of which is scaled to a maximum of 100 points. The resulting CS score therefore ranges from 0 to 100.

E. Reliability and Limitations, Reduction of Subjectivity

To ensure robustness, reliability and comparability of results, the application of the following three evaluation mechanisms is recommended:

Multiple evaluators: Each indicator should be independently assessed by at least two evaluators; the final score is calculated as an arithmetic mean.

Data triangulation: Scores must be supported by at least two independent data sources, ideally of different types (e.g., expert assessment and audience survey or MSC stories and interviews).

Calibration meetings: Assessors should agree on reference cases corresponding to scores of 4, 6 and 8 before the assessment.

VI. PARTICIPATORY DIMENSION OF THE 3D EVALUATION FRAMEWORK

The participatory dimension of evaluation is based on a shift in the understanding of the role of the audience and other actors in cultural activities, which has been evident in the professional literature since the end of the 20th century. Culture is no longer seen merely as a product created by institutions and consumed by passive recipients, but as a process co-created through various forms of participation, interaction and engagement (Bennett, 1998; Brown & Novak-Leonard, 2011). This shift is reflected both in cultural policy and in the ways cultural activities are evaluated, where participation becomes an independent source of value.

Research in the field of audience studies and cultural participation shows that the degree, form and intensity of audience involvement significantly influence the social impact of cultural activities, their sustainability and their ability to generate long-term cultural and community effects (Belfiore & Bennett, 2007; O'Brien, 2010). Participation cannot be reduced to simple attendance, but encompasses a broader spectrum of interactions – from physical presence and active participation to digital forms of engagement that extend the cultural experience beyond the place and time of the event.

From a conceptual point of view, the participatory dimension is understood as a separate evaluation perspective that differs from both economic evaluation and the cultural-social dimension. While the cultural-social approach focuses on the meanings and values produced by cultural activity, the participatory dimension looks at the processual side of the relationship between cultural activity and its actors. Separating this dimension makes it possible to capture the dynamics of audience engagement without having to convert it into economic or symbolic equivalents, which is considered methodologically problematic in the literature (Bennett, 2013; Walmsley, 2019).

The inclusion of the participatory dimension in the 3D evaluation framework also reflects the current development of digital technologies and data sources that enable the monitoring of new forms of cultural participation through behavioural and interaction

data (Gergaud & Ginsburgh, 2017; Black et al., 2024). The participatory dimension thus complements the economic and cultural-social perspectives with a processual level of evaluation and contributes to an overall understanding of cultural events as complex social situations based on the active involvement of various actors.

Participatory evaluation is becoming increasingly important in cultural policy and arts management, reflecting a shift towards audience-focused, community-based cultural practices mediated by digital technologies. Participation is understood not only as attendance, but also as active involvement, interaction and co-creation (Matarasso, 1997; Brown & Novak-Leonard, 2007; Crossick & Kaszynska, 2016). Recent research highlights the growing importance of digital data and participatory narratives for cultural impact evaluation (Davies et al., 2015; Nordvall & Brown, 2020).

Within the 3D evaluation framework, the participatory dimension captures how audiences and communities engage with the live and performing arts both on-site and online. This dimension complements economic and cultural-social evaluations by focusing on processes of engagement, feedback, and perceived change.

The participatory dimension provides a standardised score from 0 to 100 and consists of three methods.

TABLE V STRUCTURE OF THE PARTICIPATORY DIMENSION

Method	Description	Weight
Digital participation analysis	Online reach and engagement	40
Most Significant Change (MSC)	Narrative participatory evaluation	35
Social return on investment (SROI)	Monetised social value of participation	25

A. Digital Participation Analysis

Digital participation analysis quantifies audience engagement through social media platforms, websites and online campaigns. These indicators provide comparable and scalable measurements of reach and interaction in real time, but must be interpreted with caution due to specific biases inherent in individual platforms.

1) CIP Indicators: Reach and impressions; Number of interactions (likes, comments, shares, saves); Engagement rate; Number of new followers; Website traffic (sessions, unique users, referral sources); Paid campaign indicators (CTR, CPC, ROAS, PNO)

2) Evaluation Criteria, Scoring Scale, Standardisation: Indicators are evaluated using fixed categories (2–4–6–8–10) in relation to platform-specific benchmarks or historical averages. For example, engagement rates are evaluated according to sector standards for cultural organisations.

B. Most Significant Change (MSC)

The most significant change technique is a qualitative, participatory method that collects descriptions of perceived changes resulting from cultural participation (Davies & Dart, 2005). MSC is particularly suitable for community-oriented and socially engaged arts projects.

1) CIP Indicators: Number of MSC stories collected; Diversity of contributors; Depth and relevance of perceived change; Alignment with project objectives

2) Evaluation Criteria, Scoring Scale, Standardisation: MSC stories are coded and scored using fixed criteria. The score reflects both the intensity of the reported change and its relevance to the project's objectives.

C. Social Return on Investment (SROI)

Social return on investment converts social outcomes into monetary equivalents, allowing for a comparison between the resources invested and the social value created (Nicholls et al., 2012). Within this framework, SROI is used as a complementary indicator rather than a standalone decision-making criterion.

1) CIP Indicators: Identified social outcomes; Monetary proxy indicators used; SROI ratio (value created per unit invested)

2) Evaluation Criteria, Scoring Scale, Standardisation: The SROI indicators are assessed in a similar way to the economic dimension indicators in section A.1, with each indicator being assessed using fixed criteria on a five-point scale (2–4–6–8–10). Threshold values are defined in relation to sectoral benchmarks or historical results.

D. Final Aggregation Within the Participatory Dimension

For each method, the indicator scores are averaged to obtain a raw score at the method level. The raw scores are normalised on a scale of 0–100 and aggregated using predefined weighting coefficients:

$$P = 0.40 \times \text{Digital_norm} + 0.35 \times \text{MSC_norm} + 0.25 \times \text{SROI_norm}$$

E. Reliability and Limitations, Reduction of Subjectivity

Reliability is enhanced by triangulating digital data, participant statements, and financial proxies. Limitations include the platform dependency of digital metrics and the interpretive nature of narrative assessment.

VII. CONCLUSIONS

This paper has presented a multidimensional 3D evaluation framework designed for the evaluation of live cultural activities, addressing the long-standing fragmentation of evaluation approaches in the cultural field. Rather than promoting a single, unified metric, the framework is grounded in the assumption that cultural value is inherently pluralistic and cannot be adequately captured through one methodological perspective alone (Throsby, 2001; Belfiore & Bennett, 2007). Its primary contribution therefore lies not in replacing existing evaluation tools, but in organising them within a transparent, structured and reproducible analytical architecture.

A central feature of the proposed framework is the explicit separation of conceptual, methodological and interpretative layers of evaluation. The distinction between the economic, cultural-social and participatory dimensions enables the parallel assessment of different types of value while preserving their conceptual autonomy. This design choice reflects current methodological recommendations in cultural evaluation and composite indicator construction, which emphasise transparency, explicit weighting procedures and multidimensional interpretation of results (OECD, 2018; Saltelli et al., 2010).

The 3D framework is conceived as a flexible methodological tool that can be adapted to different types of cultural events, organisations and institutional settings. Although the framework is demonstrated in this article through the case of live cultural activities, its conceptual core is transferable to other contexts characterised by organised gatherings of people that generate combined economic, social and participatory effects. In this sense, the framework establishes a bridge between established traditions in cultural economics, contemporary debates on cultural value, and emerging possibilities for data-oriented evaluation.

From a methodological perspective, the proposed framework can be understood as an open and extensible structure that allows for further refinement without disrupting its underlying architecture. It thus provides a stable point of departure for future empirical applications, comparative studies and broader discussions on the role of cultural evaluation in the context of digital transformation and evolving cultural policy frameworks.

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