Co-Creating Value: The Events Sustainability Index for a Rural Case

ABSTRACT

- Purpose: This study tests a synthetic, multistakeholder framework for evaluating the sustainability of music festivals, fine-tuning it to rural settings, overcoming the traditionally accepted treatment of economic, sociocultural, and environmental impacts separately to provide a synthetic contextualized and commensurable score.
- Design/methodology/approach: Building on the Triple Bottom Line and Creating Shared Value perspectives, the framework integrates heterogeneous indicators into a single index which normalizes data for commensurability, incorporates both captured and uncaptured value, and applies stakeholder-informed weighting aligned with locally prioritized SDGs. Operationalized through a Plan-Do-Check-Act cycle, the method was piloted in the AlpakaFest, volunteer-driven cultural festival set as a Regional Social Observation Lab in Hacinas (Spain), combining resident (N=64) and participant (N=470) surveys, expenditure data, and carbon footprint analysis.
- Findings: The framework successfully integrates economic, sociocultural, and environmental data into a single Events Sustainability Index, capturing both tangible and intangible value. Its application to AlpakaFest highlights the strong sociocultural benefits of rural festivals while exposing trade-offs between economic gains and environmental impacts.
- Originality: By synthesizing diverse impacts into a transparent, comparable index, this study advances beyond one-dimensional evaluations and responds to recent calls for frameworks that operationalize co-creation and shared value in rural event settings.
- Practical implications: The approach equips organizers, policymakers, and local stakeholders with a decision-support tool to benchmark festival impacts, identify sustainability trade-offs, and embed continuous improvement into event governance. It also broadens the scope of event management research by demonstrating how small-scale, rural festivals can act as laboratories for sustainable development.

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1. INTRODUCTION

Over the past few decades, Europe has witnessed a surge in music festivals proliferating across urban and non-urban landscapes. Among them, those that nurture a strong connection to their location, especially in depopulated, rural or economically depressed zones, claim a special significance. Researchers have documented how such festivals can foster local pride, community resilience, social well-being, and even catalyze economic spillovers (e.g. Chiciudean et al. (2021) and Chiya (2025)), acting as levers of rural revitalization (Qu and Zollet, 2023; Teixeira *et al.*, 2025). Yet the success of such place-rooted festivals often depends on the degree of community engagement, resource preservation, and cultural exchange they embed (Chang and Ku, 2025).

Besides, building on transdisciplinary and co-creation approaches, recent scholarship has emphasized that festivals can act as powerful catalysts for connecting people, places, and values while enabling the co-production of actionable knowledge for sustainability. Early involvement of diverse stakeholders in the design phase is crucial, as it fosters co-ownership and ensures that the event reflects their visions, needs, and priorities. Such participatory processes transform festivals into arenas where marginalized voices and local knowledge systems are elevated, allowing for collective narratives to emerge and for shared responsibility toward social-ecological challenges to be cultivated (Dalla-Torre *et al.*, 2025).

To understand the role that events have in leveraging local economies and creating value for those involved, it is vital to study the effects that these cause (Antón-Maraña *et al.*, 2024). Research has consistently shown that music festivals generate a spectrum of economic, sociocultural, and environmental impacts, yet approaches to measuring these effects vary widely. Economic assessments traditionally rely on visitor-expenditure surveys combined with multipliers or input–output models to estimate local income and job creation (Perles-Ribes *et al.*, 2019; Seaman, 2003), though more recent studies incorporate welfare-consistent measures such as cost–benefit analysis or computable general equilibrium models (Andersson *et al.*, 2012). Sociocultural impacts have often been explored through qualitative case studies capturing place attachment, identity formation, and social capital effects (Mair and Duffy, 2018; Rickard *et al.*, 2025) , but contingent-valuation methods have begun to monetize non-use values such as residents' willingness to pay for festival continuation (Andersson *et al.*, 2012). Environmental evaluations are increasingly sophisticated, with Life Cycle Assessment (LCA)

and carbon footprinting pinpointing mobility, accommodation, and infrastructure as the main drivers of emissions (Campos *et al.*, 2023; Cavallin-Toscani *et al.*, 2024). However, most studies examine these dimensions separately, resulting in fragmented evidence and limited comparability across contexts. Calls for integrated, multi-pillar frameworks are growing, urging researchers to capture both tangible and intangible value in a commensurate way and to surface "uncaptured value" such as community cohesion or avoided impacts that elude conventional KPIs (Werner *et al.*, 2020; Zamzuri *et al.*, 2023).

This study responds to these calls by proposing the use of a systematized PDCA continuous improvement framework to test a synthetic, stakeholder-informed index that aggregates the three pillars (economic, environmental and sociocultural) into a single, interpretable measure, enabling both local relevance and cross-event comparability.

Hacinas is a Spanish village sited in the province of Burgos with a population of under 150 neighbors. Suffering from aging population and symbol of an endemic disease, common to all rural areas and some capital cities of inland Spain, as is depopulation, its census has decreased from around 500 inhabitants a century ago, according to the Spanish National Institute of Statistics (INE, 2025). Nevertheless, the municipality still holds a dear place within the heart of the descendants of those who migrated to urban areas, and who still own a vacation home to spend weekends and summer holidays in.

Since 2023, those younger generations have been organizing, annually, the AlpakaFest music festival, aiming to revitalize the economy and place Hacinas as a household name within the rural music festivals at a national level. AlpakaFest, was born as a small, volunteer-driven music and cultural festival. Conceived as a not-for-profit initiative, AlpakaFest aims to revitalize the surrounding area by attracting both local residents and visitors from nearby regions, while promoting values of inclusivity, cultural diversity, and environmental responsibility. Its programming combines concerts, workshops, and community-building activities with a strong emphasis on sustainable practices. Like other rural festivals described in the literature (Duffy and Waitt, 2011; Mair and Duffy, 2018), AlpakaFest plays a key role in strengthening place attachment, fostering social capital, and supporting the local economy. Its modest scale and reliance on local volunteers make it a paradigmatic case for testing a participatory, context-sensitive assessment model that accounts for multiple stakeholder perspectives and adapts to limited data availability. Using AlpakaFest as a case study also responds to recent calls to

broaden impact assessment research beyond mega-events and urban contexts (OECD, 2023; Salvemini *et al.*, 2022), thereby highlighting the contribution of grassroots festivals to the sustainable development of sparsely populated regions.

This study contributes to the events and sustainability literature by operationalizing a quantitative, synthetic index that jointly measures the economic, sociocultural, and environmental pillars of rural music festivals. The index normalizes heterogeneous indicators to allow commensurability and comparability across festivals and editions, integrates both captured and previously uncaptured value such as non-use and cultural cohesion benefits, and applies transparent, stakeholder-informed weighting based on locally prioritized SDGs. By applying the framework to AlpakaFest, the festival is set as a regional social observation lab, enabling the testing of the framework's feasibility in a real rural context and illustrating how integrative evaluation can support evidence-based decision-making and continuous improvement across future editions.

The rest of the paper is organized as follows. Section 2 presents the theoretical framework, drawing on the Creating Shared Value perspective, the Triple Bottom Line approach, and recent advances in composite indicators for event impact assessment. Section 3 describes the methodology, introduces the Events Sustainability Index and details measurement, data collection and sample. Section 4 applies the framework to the case of AlpakaFest, including findings and qualitative perceptions. Finally, Section 5 concludes by highlighting the theoretical contributions, practical applications, limitations, and avenues for future research.

2. THEORETICAL FRAMEWORK

2.1. Value creation framework for sustainable events

The Creating Shared Value (CSV) Theory developed by Porter and Kramer (2006) proposes a framework for aligning business success with societal progress by creating economic value in ways that simultaneously address pressing social and environmental needs. Unlike traditional Corporate Social Responsibility (CSR), which often treats social engagement as peripheral or reputation-driven, CSV embeds social concerns at the core of corporate strategy, emphasizing that profitability and social impact can reinforce one another when guided by value-creation principles rather than trade-offs. In the context of sustainable events, this approach is particularly relevant as events generate value for multiple stakeholders, from organizers and local communities, to attendees, and regional economies, through channels such as job creation,

social cohesion, cultural promotion, and environmental stewardship. Applying a CSV lens allows impact measurement to go beyond accounting for isolated economic impacts, positioning events as catalysts for shared prosperity by quantifying how benefits and costs are distributed among stakeholders and how they contribute to long-term regional sustainability.

This framework has been applied in the context of events regarding understanding different stakeholders' expectations to value creation in sport events though qualitative interviews (Cook *et al.*, 2021) and surveys (Wu and Wu, 2023). The Theory has also been employed to analyse music festivals sustainability program effectiveness, as Ribeiro et al. (2018) did for Rock in Rio. Similar to other peripheral contexts such as the Canary Islands, rural festivals can act as laboratories of sustainable tourism development, balancing cultural identity and economic viability (Oliveira *et al.*, 2024). Dalla-Torre et al. (2025) combined this theoretical background with concepts such as co-creation and rural commoning to understand the design of place-based and transdisciplinary initiatives and festivals in marginalised areas.

2.2.PDCA model for events

The Plan-Do-Check-Act (PDCA) (or its variant Plan-Do-Study-Act, PDSA) cycle offers a robust iterative structure for event co-design and continuous improvement in rural settings, where adaptability and learning are key (Lean/Quality Improvement literature). In the Plan phase, organizers and local stakeholders jointly set objectives, design event components, and hypothesize expected outcomes; in the Do stage, these components are piloted or implemented in real conditions; during Check/Study, evaluation (quantitative, qualitative, or mixed) is performed to compare results to expectations; and in Act, adjustments are made and the cycle repeats, embedding learning into subsequent editions (Leis and Shojania, 2016).

This cycle has been successfully applied in a variety of rural, community, or constrained environments, although not specifically to events. Son and Song (2013) implemented a PDCA framework in local industry promotion projects across small communities and found that iterative cycles reinforced alignment between planning, implementation, and evaluation. Moreover, Dudin et al. (2014) used the cycle in agribusiness settings to continuously improve production systems under resource constraints, showing the model's transferability to rural domains. In a health-services example, Moyce et al. (2023) used an interprofessional PDCA approach in a rural U.S. setting to identify and mitigate disparities in mental health care access, illustrating how the cycle can structure problem-solving even in scarce contexts.

In rural event co-design, adopting PDCA means intentionally building feedback loops: after one edition of the event, the evaluation (Check/Study) uncovers what resonated with local participants or what logistical or ecological issues emerged; the Act phase then incorporates these lessons into design revisions (e.g. modifying activities, venue choices, stakeholder roles). Over successive cycles, the event evolves to become more contextually attuned, locally owned, and sustainable. This approach is particularly suited to rural settings, where uncertainty, infrastructural constraints, and strong place specificity demand flexibility and learning rather than rigid prescriptive planning.

2.3. On accounting for events value creation

Events—especially rural music festivals—operate as multi-actor service ecosystems whose effects unfold before, during, and after the event and spill over to residents, SMEs, and place identity. Evaluating value creation therefore goes beyond box-ticking "greening" or counting visitor spend; it asks whether the event creates benefits for local businesses and residents while preserving natural and cultural assets, which is the precondition for long-run sustainability (Orefice and Nyarko, 2021; Zamzuri *et al.*, 2023). Building on this, grounded-theory evidence from sustainable music festivals shows that value is phenomenological and co-created in situ by audiences; evaluation should therefore also capture "uncaptured value" that arises from on-site interactions and norms (e.g., behaviors that reinforce or erode community and environmental stewardship) (Werner *et al.*, 2020). This aligns with recent debates on whether tourism growth and environmental sustainability evolve in convergence or compensation dynamics (Torres-Díaz *et al.*, 2025). In practice, public evaluation often privileges economic metrics, a pattern that can crowd out sociocultural aims and weaken legitimacy in small or peripheral places. Crucially, institutional or managerial capacity conditions which benefits are created and who captures them, linking cultural management to city branding and place value (Krawiec, 2021). Because isolated indicators are hard to compare across places and years, sustainability monitoring in tourism and culture increasingly turns to integrated dashboards and composite measures, strengthening the case for commensurate, multi-pillar event evaluation (Popova *et al.*, 2020; Vujičić *et al.*, 2023).

Recent scholarship sharpens the agenda in two ways. First, stakeholder co-creation research on mega-events (e.g., Cortina 2021 World Ski Championships, Italy) shows that value emerges when a focal organization orchestrates clear engagement rules and shared norms, sustaining community-level value even under shocks (Mason *et al.*, 2024). Second, the events literature urges scholars to uncover "uncaptured value"—surplus, missed, absent, or destroyed

value that escapes conventional KPIs and is hard to disentangle because value elements frequently overlap (Zamzuri *et al.*, 2023). Together, these strands justify measuring value creation comprehensively, economically, sociocultural-wise, and environmentally, while also looking for what standard metrics fail to see.

The dominant operational frame is the TBL and related sustainability schemas.

- Economic. Standard empirical designs combine visitor surveys with multipliers/input–output to estimate local income and jobs; more advanced work moves toward welfare-consistent measures (e.g., cost–benefit analysis, computable general equilibrium) and explicitly values non-market effects. A seminal festival study monetizes both use and non-use values—showing that intangible place value for non-attendees can be substantial (Andersson *et al.*, 2012).
- Social/cultural. A recent systematic review of live-music events synthesizes robust audience outcomes (e.g. social connection, shared values/experience, empowerment, and sustained community) offering theory-grounded constructs (social identity, social capital) that go beyond attendance or satisfaction (Rickard *et al.*, 2025). Genre- and context-specific work on classical music festivals in Japan proposes an integrated model that links festival types and socio-cultural objectives to assessment dimensions, useful for small-town/rural settings where social value often dominates the public rationale (Chiya, 2025).
- Environmental. A 247-paper systematic review maps four major themes—event footprints, greening practices, policy/guidelines, and stakeholder environmental psychology—and calls for stronger integration of environmental metrics with social and economic decision frames (Cavallin-Toscani *et al.*, 2024). Rigorous applications use life-cycle assessment; in Spain (Rías Baixas, Galicia), an LCA of tourism (including music-festival activity among trip components) shows mobility as the dominant driver of impacts, followed by accommodation energy/food and temporary infrastructures, pinpointing where festival travel plans and logistics deliver the largest environmental gains (Campos *et al.*, 2023).

Two cross-cutting strands buttress TBL work. First, destination-value studies connect events to brand/image and longer-run place competitiveness, urging integrated monitoring beyond short-term finance (Dias et al., 2022). Second, sustainable SVC reframes events as business-model ecosystems, arguing that value (captured and uncaptured) is co-produced by multiple actors whose interactions must be explicitly designed and measured (Mason *et al.*, 2024;

Orefice and Nyarko, 2021).

Evidence from diverse contexts shows how music festivals generate multi-dimensional value; and how different methods surface different facets of that value. In Australia, a qualitative study of a state-funded regional music festival demonstrates that an economic-centric evaluation arrows managerial attention to short-term financials, whereas an ecosystem-aware self-assessment reveals concurrent gains in social belonging, cultural vibrancy, and economic performance; the case thereby illustrates how governance choices shape what value is created and captured by the host community (Safari *et al.*, 2021). Turning to Italy, a case study on Matera residents' attitudes towards tourism development resonates with the benefits of involving local communities in impact assessment for a sustainable planning (Sarnacchiaro *et al.*, 2024) an assessment of the Summer Jamboree (an international vintage-music festival in Senigallia) combines visitor surveys with input–output modelling to estimate local income and employment effects and to trace backward linkages, most notably into agri-food and rural value chains, showing that cultural events can stimulate peripheral economies when local supply networks are mobilized (Baldi *et al.*, 2022). In Spain (Rías Baixas, Galicia), a life-cycle assessment of tourism itineraries that include music-festival activity finds that mobility overwhelmingly drives the environmental footprint, with accommodation energy/food and temporary infrastructures next; scenario analysis further shows that shifting travel modes (e.g., rail versus air) materially improves the environmental ledger, offering a precise lever for festival policy (Campos *et al.*, 2023).

Other designs foreground social and cultural value more explicitly. Work on classical-music festivals in Japan proposes an integrated model that links festival typologies and socio-cultural objectives to concrete assessment dimensions—particularly relevant for small-town and rural revitalization agendas where social value is the central public justification (Chiya, 2025). Complementing this, a systematic review of live-music events synthesizes consistent audience outcomes—social connection, shared experience and values, empowerment, and sustained community—thereby providing theory-grounded constructs (social identity, social capital) and validated indicators that can be embedded in festival evaluations (Rickard *et al.*, 2025). Finally, a contingent-valuation study of a Scandinavian music festival quantifies both use and non-use values, including for non-attendees, and shows that intangible social/cultural benefits can be sizeable; this result cautions against relying solely on market transactions when judging a festival's contribution to place (Andersson *et al.*, 2012). Read together, these cases show that

robust evaluations of music festivals benefit from combining economic models, LCA methods, and social-value frameworks to reveal how value is created for residents and businesses while safeguarding natural and cultural assets, precisely the balance sustainability demands.

Despite the growing demand for integrated sustainability assessments in event and festival research, the literature continues to face significant challenges in ensuring commensurability and comparability across economic, socio-cultural, and environmental dimensions. In this context, composite indicator design theory provides a well-established methodological foundation for synthesizing heterogeneous indicators into a coherent analytical framework, explicitly addressing issues related to normalization, weighting, aggregation, and transparency in value judgments (Nardo *et al.*, 2008). Such approaches have been widely advocated to support cross-case comparison and evidence-based policy evaluation in complex sustainability contexts (OECD, 2023). Recent bibliometric evidence further confirms the growing centrality of integrated TBL frameworks within sustainability research, reinforcing the relevance of synthetic and composite indicators as tools to operationalize multidimensional value creation across contexts (Albo *et al.*, 2019; Nica *et al.*, 2025).

A landmark triple-impact study of a 3-day music festival in Sweden monetizes all pillars in a uniform monetary metric, revealing that socio-cultural benefits can approach direct economic impacts while environmental harms appear "small" largely because carbon prices (not biophysical effects) were low at the time (Andersson and Lundberg, 2013). This proves feasibility but also shows how results hinge on valuation choices. Environmental assessments have become sophisticated (e.g. LCA) yet are rarely integrated with social and economic evidence within one decision frame (Campos *et al.*, 2023; Cavallin-Toscani *et al.*, 2024). Social outcomes are well theorized and evidenced (Chiya, 2025; Rickard *et al.*, 2025) but often decoupled from economic/environmental accounts or left in qualitative form, impeding comparison over time and across festivals. Policy evaluation remains economically skewed, particularly in small or rural places where intangible social/ cultural value and environmental limits are decisive (Safari *et al.*, 2021). Even where co-creation is examined qualitatively, it is seldom integrated with TBL metrics in a commensurate way, leaving a measurement gap between micro-level value processes and cross-festival comparability (Werner *et al.*, 2020). Finally, calls to detect "uncaptured value", including overlapping or destroyed value, remain largely unanswered in operational terms (Zamzuri *et al.*, 2023).

The present study directly addresses the identified gap by developing an integrated framework to measure value creation in rural music festivals. The framework ensures commensurability and comparability by normalizing heterogeneous indicators to a common scale. The ESI yields a headline score and a pillar-specific dashboard, enabling cross-festival and inter-temporal comparisons in line with the logic of composite indicators (Vujičić *et al.*, 2023) and the links between destinations and value creation (Dias et al., 2022). It goes beyond conventional key performance indicators by capturing both captured and uncaptured value, integrating the economic, social/cultural, and environmental pillars together with intangible components such as contingent valuation, thus responding to calls to surface non-use and less tangible dimensions of value (Andersson *et al*., 2012; Zamzuri *et al*., 2023).

The aggregation procedure is designed to be transparent, relying on stakeholder-informed weighting that reflects the social construction of value and aligns with service-ecosystem and business-model perspectives on how actors co-create value (Orefice and Nyarko, 2021; Mason *et al*., 2024). Finally, the framework emphasizes policy-relevant trade-offs, using scenario analysis to make explicit the tensions between different sustainability goals—such as reducing mobility-related emissions vs. maximizing local income capture—and avoiding the carbon-price trap by reporting both biophysical indicators (e.g., kg CO_2e) and monetized outcomes (Campos *et al*., 2023; Andersson and Lundberg, 2013; Cavallin Toscani *et al*., 2024).

3. RESEARCH METHODOLOGY

3.1.Methodology

The methodological framework builds on the TBL approach (Elkington, 1998) as adapted for the event sector (Andersson and Lundberg, 2013; Sherwood, 2007), which integrates economic, sociocultural, and environmental impacts into a single analytical frame. Building on the literature on CSV, this study treats events as platforms for generating joint benefits across stakeholders, organizers, participants, residents, and local institutions, rather than as mere entertainment products. This framing aligns with recent calls for event evaluation methods that transcend financial metrics to include community well-being, cultural vitality, and ecological performance (Mair and Duffy, 2018; Salvemini *et al.*, 2022). Moreover, the approach integrates co-creation and transdisciplinary engagement as emphasized in Dalla-Torre et al. (2025), positioning events as laboratories for negotiating sustainable futures and as sites of collective knowledge production.

Figure 1 illustrates how the Creating Shared Value and Triple Bottom Line frameworks are operationalized within the assessment by explicitly mapping theoretical constructs to empirical indicators and SDG-aligned impact domains.

FIGURE 1

To operationalize these principles, the method follows a Plan-Do-Check-Act (PDCA) logic to ensure iterative learning and continuous improvement. During the Plan stage, stakeholders co-define objectives, rank local sustainability challenges (aligned with residents' prioritization of SDGs), and delineate the geographic and social scope of the analysis. In this way the method complements quantitative impact estimates with subjective perception indicators that capture both participants' and residents' views, as well as residents' assessments of the relative importance of different objectives and areas of sustainable development for the host territory. These indicators provide access to qualitative and contextual information that cannot be meaningfully captured through purely quantitative variables, allowing the impacts to be interpreted in relation to the specific socio-environmental conditions of the area in which the event takes place. The Do stage involves primary data collection through surveys (attendees, residents), direct observation, and compilation of organizational and financial records. In the Check stage, data are processed, monetized where appropriate, and synthesized into a single indicator. Finally, in the Act phase, results are fed back to stakeholders in deliberative sessions, informing adjustments for future editions of the event and thereby embedding adaptive governance into the process.

Three main impact categories are assessed according to Antón-Maraña et al. (2024). Specifically dividing the categories in the three pillars considered in the TBL. Economic impacts are measured following the effects method (Devesa-Fernández, 2019; Seaman, 2003), including direct, indirect, and induced effects. Direct effects capture organizer expenditures within the host area (e.g., artistic, production or insurance costs), while indirect effects measure non-local participant spending on accommodation, food, and other services attributable to the event. To refine these estimates, participants are classified as casual—those visiting the area for other primary reasons—or noncasual—those travelling specifically to attend the festival (Beckman and Traynor, 2018). Expenditures by casual visitors, often treated as *deadweight* (Kwiatkowski *et al.*, 2017; OECD, 2023), are treated conservatively by including only those expenses directly associated with the festival. These comprise spending on entrance ticket fees,

food and beverages within the festival, festival merchandising, craft stalls, paid activities organized by the event, where applicable, while expenditures not directly linked to the festival (e.g., accommodation, transportation, or fuel) are excluded. In contrast, 100% of noncasuals' expenditures are incorporated, as they represent an injection of new money into the local economy (Crompton *et al.*, 2001; Yu and Turco, 2000). Induced effects are estimated via regional input–output multipliers to reflect the broader expansion of local economic activity (Perles-Ribes, 2006).

$$eco = direct\ effects + indirect\ effects + induced\ effects$$
$$= \Sigma\ ((direct\ effects + indirect\ effects)\ \times\ sectoral\ multipliers) \quad (1)$$

Secondly, sociocultural impacts are accounted for and monetized using contingent valuation (CV) techniques (Bateman *et al.*, 1994; Frey, 2003), capturing both non-use values (residents' willingness to pay (WTP) or accept (WTA) for event continuation/mitigation) and use values (attendees' acceptability thresholds (AT) for ticket pricing). This approach reflects the event's contribution to community identity, cultural exchange, and social capital formation (Mair and Duffy, 2018; Putnam, 1995).

$$soc = \frac{\Sigma\ (WTP - WTA)}{nº\ surveys} \times nº\ of\ locals + \frac{\Sigma\ \mathrm{AT}}{nº\ surveys} \times nº\ of\ alien\ attendees \quad (2)$$

Thirdly, the environmental assessment does not aim to constitute a full LCA, but rather a monetized carbon footprint designed to balance analytical robustness with data availability and operational feasibility in small, volunteer-driven events. While upstream supply-chain impacts are not exhaustively modelled, the approach incorporates key downstream processes —such as attendee transport (including return journeys and occupancy rates) and end-of-life treatment of food waste—through established emission factors and estimation procedures embedded in the selected calculators. In this methodology, Environmental Impacts are quantified via carbon footprint analysis using event-specific calculators, as bp target Neutral (2022). Data include utilities consumption, transport patterns, consumables, waste streams, and spatial occupation, all converted to CO_2-equivalents and monetized using prevailing carbon market prices (Andersson and Lundberg, 2013). This approach relies, partly, on estimates and secondary databases, as the ones streaming data into the calculators. However, the use of estimates and established methods, responds to the need of creating a self-assessment tool easy to operate

reiteratively by small festival organizers without a big dedicated budget; besides, the estimates and conversion factors have been internationally accepted and applied by organizations and literature (e.g. The Environmental Prices Handbook by De Bruyn et al. (2018) or National Greenhouse Gas Reporting Factors by UK Department for Business Energy & Industrial Strategy (2020)).

$$env = \sum kg\ of\ CO_2\ eq\ (total\ output\ from\ the\ calculation\ tool) \times price\ per\ tonne\ of\ CO_2 \quad (3)$$

Finally, the three impact categories' scores are aggregated into a synthetic index that expresses the net impact in monetary terms, which has been named the Events Sustainability Index (ESI). The ESI applies a linear aggregation structure in line with established composite indicator practice (Nardo *et al.*, 2008). Prioritizing transparency, interpretability, and replicability, while recognizing that interdependencies among economic, sociocultural, and environmental dimensions are explored at the level of interpretation, the qualitative Likert-scale questions and scenario analyses, rather than through embedded non-linear modelling.

$$ESI = \alpha \times eco + \beta \times soc - \gamma \times env \quad (4)$$

$$\alpha + \beta + \gamma = 1 \quad (5)$$

As expressed in (4) and (5) equations, eco, soc, and env represent the monetized economic, sociocultural, and environmental impacts, respectively, and α, β and γ are weighting coefficients co-created through locals' consultation. Unlike most studies that assume equal weights, this approach derives these weights through local participatory prioritization of SDGs (Rockström and Sukhdev, 2016), highlighting what are the most pressing economic (α), sociocultural (β) and environmental (γ) aspects affecting local development; these preferences adjust the relative importance of each impact category while ensuring that no dimension is completely discarded[1]. This procedure strengthens contextual relevance and operationalizes the "social construction of value" principle (De Castro, 2006). The co-produced activities generate new knowledge, strengthen social capital, and inspire participants to move from a passive consumer role toward active co-production and consumption, where they jointly shape and

[1] For a more in-depth explanation of the ESI design, please read the work of Antón-Maraña *et al*. (2024).

benefit from the value created (Dalla-Torre *et al.*, 2025).

The final ESI is shared with stakeholders in an accessible format to support decision-making, benchmarking across editions, and accountability to funders and the public (Nardo *et al.*, 2008). The feedback loop created by this process not only satisfies reporting needs but also contributes to learning-oriented governance as future event design can incorporate insights on spending patterns, cultural resonance, and environmental performance, thus progressively increasing shared value creation and minimizing negative externalities. In this sense, festivals become laboratories for experimenting with alternative futures, providing spaces for negotiation, reflection, and the performance of new identities and relationships that can influence local development trajectories (Dalla-Torre *et al.*, 2025).

3.2. Measurement

Two questionnaires were designed to evaluate the multidimensional value creation of Alpakafest in accordance with those proposed by Antón-Maraña et al. (2024). At the beginning of each questionnaire, the purpose of the study was clearly explained, together with the confidentiality, anonymity, and voluntariness of participation. An informed consent link was included to comply with the European General Data Protection Regulation (EU Regulation 2016/679).

The residents' questionnaire was structured in three main sections. First, it included screening questions to ensure respondents' linkage with the territory: the item on *habitual residence* allowed filtering the sample, considering only those residing or registered in Hacinas and nearby villages, in order to guarantee local knowledge and relevance of responses. The second section focused on evaluation of festival impacts, combining *non-use value questions* (WTP and WTA) and Likert-scale items assessing the festival's impact to several dimensions and a general rating. Subsequently, respondents were asked to indicate the most relevant aspects for the development of the area based on SDGs, structured into three blocks (environmental, social, and economic/structural), which enabled weighting the relative importance of each type of impact. Finally, an open-ended question is provided so that respondents can freely share additional opinions or suggestions.

The participants' questionnaire followed a parallel but participant-oriented structure. The first section included the type of participant, which facilitated sample segmentation by festival role.

The question on habitual residence allowed distinguishing external participants from locals, while additional items captured motives for attending, travel group composition, and number of companions. The second section focused on attendance and logistics. These variables were key to assessing the environmental impacts associated with mobility and overnight stays. The third section addressed economic effects, asking about detailed expenditure categories, as well as maximum acceptable ticket prices (AT). The fourth section measured perceived impacts of the festival through Likert scales, a general rating and a question on recommendation intention. Finally, at the request of the organizers, the questionnaire included qualitative questions about suggested improvements, preferred artists, and organizational feedback, with the aim of informing the design of future editions.

Table I summarizes the methodological approach applied to measure the three pillars of value creation—economic, sociocultural, and environmental— and the ESI creation, showing the indicators and data sources used in each case.

TABLE I

To minimize bias, several measures were taken. Experts in tourism, sustainability, and consumer behavior from the University of Burgos validated the questionnaires, and a pilot test was conducted with the festival's organizers to refine wording, comprehension, and length. Given the objective of constructing a composite sustainability index rather than estimating latent variables, survey items are treated as observable indicators contributing independently to the overall assessment. Consequently, traditional regression-based concerns such as multicollinearity are less critical (Nardo *et al.*, 2008) where some degree of correlation among indicators is both expected and conceptually meaningful.

As a robustness check, internal consistency of the perceived-impact Likert-scale items was assessed using Cronbach's alpha, computed in R (psych package). The analysis was conducted separately for participants and residents to account for potential differences between stakeholder groups. Results indicate good internal consistency for participants ($\alpha = 0.81$) and excellent internal consistency for residents ($\alpha = 0.90$), both exceeding conventional thresholds.

As shown in Table II, item–total correlations are satisfactory across all indicators for both groups, with values well above commonly accepted cut-offs. Inter-item relationships remain moderate, indicating that the items capture complementary but non-redundant dimensions of

festival impacts. This pattern is consistent with the multidimensional structure of the scale, which intentionally encompasses economic, sociocultural, and environmental dimensions rather than a single latent construct.

TABLE II

Accordingly, indicators were retained based on theoretical relevance and substantive meaning, rather than on the maximization of internal consistency coefficients. This approach ensures coherence with the study's primary aim: providing a transparent and policy-relevant composite sustainability index capable of supporting decision-making and continuous improvement in rural event governance.

3.3.Data collection and sample

Data were collected through a survey technique specifically designed for the Alpakafest. The sampling technique was purposive and non-probabilistic, targeting residents of Hacinas and nearby villages, as well as participants directly involved in the festival (attendees, volunteers, workers, and organizers).

Data collection was conducted in cooperation with the festival organizers and volunteers. In July 2025, a training session was held in Hacinas for the volunteers, who then assisted researchers in distributing and collecting surveys. Surveys among residents were conducted during the fifteen days preceding the event, while surveys among participants took place on-site during the festival (August 1–2, 2025). To enhance data reliability and avoid duplicate responses, only one individual per group was allowed to complete the questionnaire.

In total, 478 responses were obtained from participants and 64 valid responses from residents. After data cleaning, 8 responses from local participants were eliminated, leaving 470 valid cases (445 attendees, 19 volunteers, 5 workers, and 1 organizer).

The study achieved a high level of coverage for both stakeholder groups, providing a solid basis for contextual representativeness in a rural setting. Among residents, 64 valid responses were obtained from an estimated population of approximately 110 inhabitants, corresponding to nearly 60% coverage. For non-local participants, 470 responses were collected from an estimated population of 2,366 individuals, representing around 20% of total attendance. The characteristics of the sample are shown in Table III.

TABLE III

Although the sampling strategy is non-probabilistic, this is the common approach to take for on-site event research and community-based studies. Under a conservative assumption ($p = 0.5$), the achieved sample sizes correspond to approximate margins of error of ±8% for residents and ±4% for participants at a 95% confidence level. These values are reported as descriptive references rather than inferential guarantees, and they support the robustness of the findings within the specific place-based context examined. At the same time, as in most case-based and rural studies, some heterogeneity of visitor and resident perceptions may not be fully captured. Accordingly, results should be interpreted as context-specific and oriented toward local decision-making, rather than as statistically generalizable.

4. RESULTS

4.1. Impacts' results

The economic impact of the festival is composed of direct, indirect, and induced effects, as summarized in Table IV which details the expenditure categories allocated to each impact component.

Direct effects account for approximately 22% of the total economic impact and are associated with expenditures incurred directly by the festival organization, including artistic costs, technical services, infrastructure, and operational expenses.

Indirect effects represent around 39% of the total economic impact. Of this share, approximately 15% corresponds to off-site expenditures by non-casual participants, reflecting spending outside the festival venue, while the remaining 24% is associated with on-site expenditures within the festival area. As shown in Table IV, these include purchases at craft stalls based on participants' survey responses, as well as services managed by the festival organization—such as ticket sales, festival bars, and official merchandising—reported in the organization's budget.

Finally, induced effects capture the broader economic repercussions generated through supply-chain linkages and income circulation across economic sectors. As illustrated in Table IV, induced effects are distributed across multiple economic activities according to the corresponding sectoral multipliers derived from input–output relationships. Each expenditure

category is explicitly linked to the corresponding sectoral multiplier used to estimate induced effects.

TABLE IV

Overall, the results indicate that the economic performance of the event is primarily shaped by participant-related spending, while organizational expenditure provides a stable but smaller contribution. This pattern highlights the importance of visitor profiles and spending structures in determining the economic impact of rural cultural events.

The sociocultural impact of the festival was assessed through stated preference measures, capturing both use and non-use values associated with the event.

Among participants, the social value is primarily driven by use value, as reflected in their average WTP above the acceptability threshold (37.66€). This result indicates a positive individual valuation of the festival experience and a clear perceived benefit among attendees.

For residents, the resulting positive net value (219.13€) suggests that residents perceive the festival as generating collective benefits that outweigh associated inconveniences, even among those who may not participate directly in the event.

Overall, the results show that the sociocultural pillar is supported by both participant enjoyment (77%) and resident acceptance (23%), highlighting the role of the festival in fostering community cohesion, place attachment, and social legitimacy within the local context.

The environmental impact was estimated through a carbon footprint assessment covering participant mobility, accommodation, energy use, consumables, waste management, merchandising and spatial occupation. Results show that the festival generates a moderate but non-negligible environmental burden, with transport-related emissions emerging as the dominant contributor (generating about 97% of the tons of carbon dioxide equivalent), followed by accommodation, hospitality and temporary infrastructure. This pattern is consistent with previous research on small-scale and rural music festivals, where visitor mobility represents the main source of greenhouse gas emissions due to limited public transport accessibility (for Alpakafest, organisers hired two coaches to go to and for the city of Burgos and neighbouring village Salas de los Infantes) and the predominance of private vehicles. However, car sharing alternatives allowed a reduction of emissions, as on average the mean vehicle occupation was

of around 4.6. As for hospitality and infrastructures, as the majority of the attendants slept on tents or camper vans, the impact associated was negligible, compared to the transportation impacts. For food and drink, the impacts accounted for were limited to the food sold by the organisers, excluding that bought in the food trucks or establishments outside the festival.

TABLE V

Once all the environmental burdens were quantified and expressed in tons of CO_2 equivalents, two monetisation scenarios were explored in order to assess the sensitivity of results to different carbon-pricing assumptions. First, emissions were valued using the EU Emissions Trading System (EU ETS) market price prevailing at the time of the event (60–80 EUR/ tCO_2eq), reflecting the policy-relevant and operational cost of greenhouse gas emissions within the European regulatory context. Second, emissions were monetised using the EU Environmental Prices Handbook (De Bruyn *et al.*, 2018) value (130 EUR/tCO_2eq), which is grounded in damage-based estimates of the social cost of carbon.

As shown in Table V, the choice of monetisation approach substantially affects the magnitude of the environmental cost, although the relative contribution of each source remains unchanged across scenarios. Using EU environmental prices nearly doubles the estimated environmental burden, strengthening the corrective weight of the environmental pillar within the aggregated sustainability assessment. While this approach better reflects long-term climate damages and normative precautionary principles, it also risks disproportionately amplifying the environmental component relative to the economic and sociocultural pillars, potentially overriding the stakeholder-informed weighting derived from residents' prioritisation of local sustainability concerns within the ESI while also altering the intended balance of the TBL framework.

For this reason, and in line with the decision-support and policy-oriented aims of the Events Sustainability Index, the EU ETS price was retained as the baseline monetisation approach. This choice ensures consistency with existing regulatory instruments, enhances transparency and interpretability for practitioners, and preserves commensurability across sustainability dimensions. At the same time, the comparison with damage-based environmental prices highlights the sensitivity of results to valuation assumptions and underscores the importance of explicitly reporting monetisation choices when integrating environmental impacts into synthetic sustainability indices.

4.2. The Events Sustainability Index

To construct the ESI, pillar weights were derived from the residents' survey by using the SDGs as a structured framework to elicit local priorities. Specifically, residents were asked to select the SDG-related aspects they considered most relevant for the development of Hacinas and the surrounding area within three blocks: environmental, social, and economic as can be seen in Figure 2.

FIGURE 2

For each block, we computed (i) the average number of selected aspects or "checked" SDGs (AvgC-SDGs) and (ii) the average number of non-selected aspects (AvgU-SDGs), noting that each block contained four items (Table VI). These averages were then converted into two normalized components, i and j, for each pillar, reflecting the relative emphasis placed on selected versus non-selected aspects. This procedure yields pillar-specific weights that are grounded in stakeholders' perceived relevance and ensure comparability across dimensions.

TABLE VI

A key implication of using subjective community-based ratings is that the methodology produces an *ad hoc synthetic index* that is unique to each event and context. While this context-sensitive weighting may appear counterintuitive from a strict standardization perspective, it does not undermine methodological rigor. On the contrary, it systematizes both the theoretical rationale and the procedural steps behind the assessment, ensuring transparency and traceability. Although comparability between festivals may be partially constrained, the primary purpose of the index is to provide an easily interpretable, decision-support tool that captures sustainability performance in relation to local priorities and conditions.

Based on these weights, the ESI is obtained as a weighted aggregation of the environmental, economic and social pillars. When monetized using policy-relevant carbon prices, the environmental pillar introduces a negative adjustment to the overall sustainability balance of the event, reflecting the environmental costs associated with its celebration. Although smaller in magnitude than the economic and sociocultural benefits generated, this negative contribution highlights clear trade-offs between local value creation and environmental pressures. Importantly, the environmental results provide actionable insights for future editions, indicating that improvements in mobility planning, shared transport options, and energy sourcing

represent the most effective leverage points for reducing the festival's environmental footprint over time.

$$\alpha = i_{eco} + \frac{j_{soc}}{2} + \frac{j_{env}}{2} = 0.18 + \frac{0.17}{2} + \frac{0.18}{2} = 0.35 \quad (6)$$

$$\beta = i_{soc} + \frac{j_{eco}}{2} + \frac{j_{env}}{2} = 0.17 + \frac{0.15}{2} + \frac{0.18}{2} = 0.34 \quad (7)$$

$$\gamma = i_{env} + \frac{j_{eco}}{2} + \frac{j_{soc}}{2} = 0.15 + \frac{0.15}{2} + \frac{0.17}{2} = 0.31 \quad (8)$$

$$ESI = \alpha \times eco + \beta \times soc - \gamma \times env = 0.35 \times 458{,}398 + 0.34 \times 105{,}294 - 0.31 \times 29{,}007 \quad (10)$$

$$ESI = 189{,}035.23$$

$$\alpha + \beta + \gamma = 1 \quad (11)$$

As can be seen in the equations above (6 - 11) the ESI, when considering a normative price of 70 euros per ton of CO_2 emitted (EU ETS carbon prices), reaches a score of 189,035 euros. However, alternatively, if the social cost of carbon as measured by the Handbook of Environmental Prices were considered (130 euros per ton of CO_2 emitted), the ESI score would be of 23,707.94 euros. This result would imply a reduction of 87% on the aggregated impact, which reflects the sensitivity that the index has to different carbon accounting strategies.

4.3. Stakeholders' perceptions and ESI interaction

While the estimated economic, sociocultural, and environmental impacts reflect the contribution of AlpakaFest, their magnitude should be interpreted within the broader regional and temporal context in which the event takes place. In this sense, AlpakaFest operates as a regional social observation lab, where the observed impacts emerge from the interaction between local economic, social and environmental conditions.

Local economic conditions, such as regional income levels, employment dynamics, or the availability of complementary tourism services, may influence visitors' spending capacity and the extent of local economic spillovers. Similarly, tourism demand cycles and seasonal patterns can affect both attendance profiles and expenditure structures, shaping observed economic outcomes. Considering the results of perceptions (Figure 3), economic-related aspects such as *attraction of tourism to the area* and *creation of wealth for local businesses* receive consistently

positive scores from both residents and participants, reflecting a favourable regional and seasonal economic context that supports visitor spending and local income generation. Slightly higher ratings among participants suggest that visitors may perceive economic spillovers more strongly than residents, whose assessments are likely informed by longer-term exposure to local economic conditions.

FIGURE 3

From a sociocultural perspective, contextual factors such as the degree of rural depopulation, residents' prior exposure to cultural events (especially in the same region), community cohesion, and the intensity of volunteer involvement may condition residents' perceptions, acceptance levels, and willingness to support the festival over time. Social impacts may therefore vary across editions depending on demographic composition, levels of community engagement, or concurrent local initiatives. Considering the results of perceptions (Figure 3), sociocultural impacts are the most positively valued across both groups, particularly regarding *knowledge of the area*, *artistic and cultural development*, and *reputation of local residents*, all of which approach the upper end of the scale. These high scores point to the role of contextual social factors typical of rural settings such as strong community cohesion, volunteer involvement, and limited prior access to cultural events in amplifying perceived social benefits.

Environmental outcomes are likewise sensitive to external conditions, including prevailing mobility infrastructures, accessibility by public transport, weather conditions, and seasonal travel behaviours. In particular, the summer timing of the festival coincides with higher baseline tourism activity in the area, which may reinforce economic spillovers while also intensifying environmental pressures related to transport-related emissions, congestion, and resource use. Considering the results of perceptions (Figure 3), environmental impacts receive comparatively lower, though still positive, evaluations, especially among residents (*natural environment of the area*). This pattern is consistent with external conditions related to mobility infrastructure and seasonal tourism intensity: the summer timing of the festival may heighten sensitivity to transport-related pressures and resource use, leading to more cautious environmental assessments.

Accordingly, the ESI captures the festival's performance as embedded in a specific contextual setting (economic, social, and environmental) contextual setting, rather than as an isolated intervention, underscoring the importance of interpreting index values in relation to regional

characteristics and temporal circumstances.

4.4. Application of the Plan-Do-Check-Act model

The application of the PDCA cycle to AlpakaFest illustrates how the ESI functions not only as an evaluative tool but also as a mechanism for structured learning and adaptive improvement. In the Plan phase, the co-definition of objectives and the prioritisation of SDG-related concerns by residents provided an explicit reference frame against which subsequent results could be interpreted. This process clarified that sociocultural objectives, such as community cohesion, cultural development, and local reputation, were perceived as particularly salient for the territory, while environmental concerns, although relevant, were comparatively less prioritised at the outset.

During the Do phase, the festival was implemented following its existing organisational model, characterised by volunteer-based governance, local supplier engagement, and limited infrastructural intensity. Primary data collection during the event and in the surrounding period ensured that economic flows, sociocultural perceptions, and environmental pressures were captured in a consistent and replicable manner.

The Check phase revealed several patterns with direct implications for future editions. First, the strong sociocultural performance, reflected in high resident acceptance and participant valuation, confirmed that the festival effectively delivers shared social value aligned with local priorities. Second, the disaggregation of the environmental footprint clearly identified participant mobility as the dominant source of emissions, while other components such as accommodation and on-site infrastructure played a marginal role. Third, the interaction between perceived environmental impacts and monetised results highlighted a gap between relatively positive subjective evaluations and the objective weight of transport-related emissions, signalling an area where awareness and mitigation efforts could be strengthened.

These findings informed the Act phase through feedback sessions with organisers and local stakeholders, where results were discussed in accessible terms. Based on the evidence generated, organisers identified a set of concrete improvement directions for future editions, including the reinforcement of collective transport options, the formalisation of car-sharing incentives, and the integration of targeted communication strategies to align participant behaviour with environmental objectives. Importantly, these potential adjustments do not

require structural changes to the festival's scale or identity, but rather incremental design choices consistent with its rural and volunteer-driven nature.

Overall, the PDCA application demonstrates that the ESI supports a shift from one-off impact measurement toward iterative, learning-oriented governance. By linking quantified impacts with stakeholder perceptions and locally defined priorities, the framework enables organisers to translate evaluation results into feasible corrective actions, thereby embedding continuous improvement into the long-term sustainability trajectory of the festival.

5. CONCLUSIONS

5.1. Theoretical implications

This study advances tourism management scholarship by operationalizing the Creating Shared Value perspective and the TBL approach within a continuous improvement cycle for sustainable events management. By developing a synthetic, stakeholder-informed ESI, the research demonstrates that heterogeneous economic, sociocultural, and environmental indicators can be normalized and aggregated into a commensurate, comparable score to account for the value created by an event. This addresses the long-standing fragmentation of event studies that have traditionally privileged single pillars or isolated stakeholder views, while also incorporating the concept of uncaptured value, extending debates on value co-creation in rural and peripheral contexts.

Importantly, the work responds to ongoing discussions on commensurability in sustainability assessments. While composite indicators are often criticized for subjectivity and weighting choices, the transparency of the ESI design and its grounding in community SDG priorities mitigate these risks. By embedding participatory weighting, the framework bridges micro-level stakeholder involvement with macro-level comparability. Moreover, the study provides a real-world test case of the ESI in a rural festival where sparse data and reliance on volunteer-driven organization mirror common limitations of small events. In this context, AlpakaFest is set as a regional social observation lab, illustrating how methodological standardization can be adapted to resource-constrained contexts, contributing to the literature on synthetic indices as tools that both systematize continuous improvement and democratize impact evaluation in tourism research.

5.2. Practical implications

For practitioners, the proposed framework offers a replicable decision-support tool that allows rural event organizers, local authorities, and policymakers to benchmark festival performance across editions and contexts. In this sense, comparability remains one of the key strengths of the proposed methodology. On the one hand, comparability is ensured within a given event, as the three sustainability pillars are expressed in a common monetary unit, allowing direct comparison between economic, sociocultural, and environmental impacts.

On the other hand, the framework enables longitudinal comparability, making it possible to track the sustainability performance of successive editions of the same event over time. In this sense, the value of sustainability impact assessment does not lie solely in the absolute results of a single year, but in its capacity to support benchmarking, reveal trends, and assess relative improvements or deteriorations across editions.

Furthermore, while the methodology is inherently context-sensitive, comparison across different events is not precluded. When events operate in markedly different contexts, such as large urban festivals versus small rural initiatives, comparability can be enhanced by departing from the synthetic index and applying commonly used normalization factors, such as impacts per capita or relative to the GDP of the host area.

For these reasons, the proposed framework produces results that are both commensurable and comparable, while remaining sensitive to contextual differences, thereby providing meaningful and policy-relevant information for public authorities, funding bodies, and event organizers.

By embedding locally prioritized SDGs into the weighting system, the method ensures contextual relevance and transparency, empowering communities to identify sustainability trade-offs and to align event design with long-term territorial development goals.

In practice, this facilitates not only accountability to funders and institutions but also dialogue with residents and stakeholders, enhancing legitimacy and trust. Beyond AlpakaFest, the framework is adaptable to other small-scale, volunteer-driven initiatives, providing practical guidance on how to integrate stakeholder participation into governance, report sustainability outcomes in accessible ways, and embed continuous improvement cycles into rural event management. This strengthens the capacity of festivals to act not only as cultural gatherings but also as laboratories for rural revitalization and sustainable tourism development.

5.3. Limitations and future research

Despite the advancements made in events sustainability management, some persisting limitations should be acknowledged. First, reliance on self-reported survey data may introduce recall or response bias, while monetization and weighting choices inevitably entail normative assumptions that can vary across communities. Second, despite the high level of coverage achieved, the study remains subject to limitations typical of case-based research in small rural settings. While the sample captures a substantial share of both residents and participants, some heterogeneity of perceptions, particularly related to unobserved socio-demographic characteristics or levels of involvement, may not be fully reflected. Third, although the ESI is designed to enhance comparability across events, results should therefore be interpreted in relation to the broader regional and temporal context in which festivals take place. Finally, while the ESI integrates uncaptured and intangible value dimensions, the extent to which it can fully reflect destroyed or overlapping value remains open to methodological refinement, future research could explore non-linear relationships and interaction effects among economic, sociocultural, and environmental dimensions, while carefully addressing the risk of double-counting overlapping impacts. In addition, framework is designed to be accessible, easily applicable and participatory, nevertheless, its implementation requires time, data availability and stakeholder coordination, which may challenge small festivals with limited organizational capacity.

Future research should extend the application of the framework to different event typologies and territorial contexts in order to assess scalability and sensitivity. Comparative studies across regions could help balance the tension between local contextualization and the pursuit of standardized benchmarking. Longitudinal applications would further allow tracking of continuous improvement cycles and testing of the PDCA model's robustness. Methodological innovation could include triangulating survey data with behavioral evidence or big data sources and refining monetization approaches for intangible and negative externalities. Besides, is foreseen to experiment with participatory focus groups to uncover unseen sources of uncaptured value in the near future. Ultimately, further research should reflect critically on how synthetic indices can balance their communicative power and ease of interpretation with the complexity and heterogeneity of real-world festival impacts.

REFERENCES

Albo, Y., Lanir, J. and Rafaeli, S. (2019), "A Conceptual Framework for Visualizing Composite Indicators", *Social Indicators Research*, Springer, Vol. 141 No. 1, pp. 1–30, doi: 10.1007/S11205-017-1804-0.

Andersson, T.D., Armbrecht, J. and Lundberg, E. (2012), "Estimating Use and Non-use Values of a Music Festival", *Scandinavian Journal of Hospitality and Tourism*, Vol. 12 No. 3, pp. 215–231, doi: 10.1080/15022250.2012.725276.

Andersson, T.D. and Lundberg, E. (2013), "Commensurability and sustainability: Triple impact assessments of a tourism event", *Tourism Management*, Pergamon, Vol. 37, pp. 99–109, doi: 10.1016/J.TOURMAN.2012.12.015.

Antón-Maraña, P., Díez-Hernández, J. and Puche-Regaliza, J.C. (2024), "A Novel Multiperspective and Multistakeholder Approach to Event Impact Measurement: Synthesizing the Triple Bottom Line", *Event Management*, Vol. 28 No. 6, pp. 819–841, doi: 10.3727/152599524X17108153015691.

Baldi, L., Peri, M., Baldi, G. and Trentinaglia, M.T. (2022), "Economic Impact of an International Musical Event in a Small Destination: What Benefits For Local and Rural Development?", *Event Management*, Vol. 26 No. 2, pp. 419–436, doi: 10.3727/152599521X16192004803494.

Bateman, I., Willis, K. and Garrod, G. (1994), "Consistency Between Contingent Valuation Estimates: A Comparison of Two Studies of UK National Parks", *Regional Studies*, Vol. 28 No. 5, pp. 457–474, doi: 10.1080/00343409412331348396.

Beckman, E. and Traynor, M. (2018), "Utilizing trade market analysis to identify the economic impact of a multiday special event in Miami Beach, Florida", *Tourism Economics*, SAGE PublicationsSage UK: London, England, Vol. 25 No. 2, pp. 253–273, doi: 10.1177/1354816618800194.

bp target Neutral. (2022), *Running Lower Carbon Events – a Toolkit*.

De Bruyn, S., Bijleveld, M., De Graaff, L., Schep, E., Schroten, A., Vergeer, R. and Ahdour, S. (2018), *Environmental Prices Handbook*.

Campos, C., Gallego, M., Villanueva, P., Laso, J., Dias, A.C., Quinteiro, P., Oliveira, S., *et al.* (2023), "Life cycle assessment to address the environmental impacts of tourism in a Spanish tourist destination: The case of Rias Baixas (Galicia) holidays", *Science of the Total Environment*, Elsevier B.V., Vol. 896, doi: 10.1016/j.scitotenv.2023.166242.

De Castro, R. (2006), "La construcción social de la sostenibilidad. Perspectivas de la investigación socioambiental.", *Persona, Sociedad y Medioambiente. Perspectivas de La Investigación Social de La Sostenibilidad.*, Consejería de Medio Ambiente. Junta de Andalucía, pp. 56–70.

Cavallin-Toscani, A., Vendraminelli, L. and Vinelli, A. (2024), "Environmental sustainability in the event industry: a systematic review and a research agenda", *Journal of Sustainable Tourism*, Routledge, Vol. 32 No. 12, pp. 2663–2697, doi: 10.1080/09669582.2024.2309544.

Chang, K.Y. and Ku, E.C. (2025), "Achieving regional revitalization through festival marketplaces: The perspective of participating companies", *Journal of Vacation Marketing*, Vol. 31 No. 2, pp. 335–350, doi: 10.1177/13567667231200273.

Chiciudean, D.I., Harun, R., Muresan, I.C., Arion, F.H. and Chiciudean, G.O. (2021), "Rural Community-Perceived Benefits of a Music Festival", *Societies*, Vol. 11 No. 2, p. 59, doi: 10.3390/soc11020059.

Chiya, A. (2025), "Classical Music Festivals in Japan: Types, Objectives, and Integrated Model of Impact Assessment and Theoretical Implications", *International Journal of Arts Management*, Vol. 27 No. 3, pp. 22–42.

Cook, D., Biscaia, R., Papadas, K., Simkin, L. and Carter, L. (2021), "The creation of shared value in the major sport event ecosystem: understanding the role of sponsors and hosts", *European Sport Management Quarterly*, Vol. 23 No. 3, pp. 811–832, doi: 10.1080/16184742.2021.1931394.

Crompton, J.L., Lee, S. and Shuster, T.J. (2001), "A Guide for Undertaking Economic Impact Studies: The Springfest Example", *Journal of Travel Research*, Sage PublicationsSage CA: Thousand Oaks, CA, Vol. 40 No. 1, pp. 79–87, doi: 10.1177/004728750104000110.

Dalla-Torre, C., Moriggi, A., Elzenbaumer, B., Favargiotti, S. and Ferretti, M. (2025), "Co-creating a

festival with and for rural commoning initiatives: a transdisciplinary place-based process", *Ecology and Society*, Vol. 30 No. 3, doi: 10.5751/ES-16095-300308.
Devesa-Fernández, M. (2019), "Repercusiones económicas y sociales de los festivales de música: sistemas de medición e indicadores de impacto", *Trans: Transcultural Music Review*, Sociedad de Etnomusicología (SIbE), No. 23, p. 8.
Dias, Á., Pereira, L., Costa, R.L. Da and Dutschke, G. (2022), "Events and their influence on the destination value", *International Journal of Business Environment*, Inderscience Publishers, Vol. 13 No. 1, pp. 1–34, doi: 10.1504/ijbe.2022.120328.
Dudin, M., Frolova, E., Vladimirovna, G. and Shuvalova, E. (2014), "The Deming Cycle (PDCA) Concept as an Efficient Tool for Continuous Quality Improvement in the Agribusiness", *Asian Social Science*, Vol. 11, p. 239, doi: 10.5539/ass.v11n1p239.
Duffy, M. and Waitt, G. (2011), "Rural Festivals and Processes of Belonging", in Gibson, C. and Connell, J. (Eds.), *Festival Places: Revitalising Rural Australia*, Channel View Press, pp. 44–59.
Elkington, J. (1998), "Partnerships from *cannibals with forks: The triple bottom line of 21st-century business*", *Environmental Quality Management*, Vol. 8 No. 1, pp. 37–51, doi: 10.1002/tqem.3310080106.
Frey, B.S. (2003), *Arts & Economics: Analysis & Cultural Policy*, Springer, Berlin.
INE. (2025), "Censo de población de Hacinas", available at: https://www.ine.es/intercensal/intercensal.do?search=3&codigoProvincia=09&codigoMunicipio=154&btnBuscarCod=Consultar+selecci%C3%B3n (accessed 29 September 2025).
Krawiec, W. (2021), "Managers of Cultural Institutions and Their Importance for the Activities Related to Building the City Brand – Results of Qualitative Research", *Problemy Zarzdzania-Management Issues*, Vol. 19 No. 1, doi: 10.7172/1644-9584.91.11.
Kwiatkowski, G., Diedering, M. and Oklevik, O. (2017), "Profile, patterns of spending and economic impact of event visitors: evidence from Warnemünder Woche in Germany", *Scandinavian Journal of Hospitality and Tourism*, Routledge, Vol. 18 No. 1, pp. 56–71, doi: 10.1080/15022250.2017.1282886.
Leis, J. and Shojania, K. (2016), "A primer on PDSA: Executing Plan-do-study-act cycles in practice, not just in name", *BMJ Quality & Safety*, Vol. 26, doi: 10.1136/bmjqs-2016-006245.
Mair, J. and Duffy, M. (2018), "The Role of Festivals in Strengthening Social Capital in Rural Communities", *Event Management*, Vol. 22 No. 6, pp. 875–889, doi: 10.3727/152599518X15346132863229.
Mason, M.C., Iacuzzi, S., Zamparo, G. and Garlatti, A. (2024), "How do stakeholders co-create value in a service ecosystem? Insight from mega-events", *Management Decision*, Emerald Publishing, Vol. 62 No. 13, pp. 398–425, doi: 10.1108/MD-02-2023-0215.
Moyce, S., Claudio, D. and Velazquez, M. (2023), "Using the PDCA cycle to uncover sources of mental health disparities for Hispanics.", *International Journal of Mental Health Nursing*, Vol. 32 No. 2, pp. 556–566, doi: 10.1111/inm.13100.
Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffmann, A. and Giovannini, E. (2008), *Handbook on Constructing Composite Indicators: Methodology and User Guide*, OECD publishing, Paris (France), doi: 10.1787/9789264043466-en.
Nica, I., Chiriță, N. and Georgescu, I. (2025), "Triple Bottom Line in Sustainable Development: A Comprehensive Bibliometric Analysis", *Sustainability*, Multidisciplinary Digital Publishing Institute, Vol. 17 No. 5, doi: 10.3390/SU17051932.
OECD. (2023), *Impact Indicators for Culture, Sports and Business Events: A Guide Part II*, doi: 10.1787/e2062a5b-en.
Oliveira, C., López-Arquillo, J.D., Serrano-González, J. and Cadenas-Borges, M. (2024), "The rising of sustainable tourism in the Canary Islands", *International Case Studies in Innovation and Entrepreneurship in Tourism*, Routledge, London, pp. 102–107, doi: 10.4324/9781003390817-17.
Orefice, C. and Nyarko, N. (2021), "Sustainable value creation in event ecosystems–a business models perspective", *Journal of Sustainable Tourism*, Routledge, Vol. 29 No. 11–12, pp. 1932–1947, doi: 10.1080/09669582.2020.1843045.
Perles-Ribes, J.F. (2006), "Análisis del impacto económico de eventos: una aplicación a fiestas

populares de proyección turística", *Cuadernos de Turismo*, Vol. 17 No. 17, pp. 147–166.
Perles-Ribes, J.F., Ramón-Rodríguez, A.B., Moreno-Izquierdo, L. and Such-Devesa, A.M.J. (2019), "Online Reputation and Destination Competitiveness: The Case of Spain", *Tourism Analysis*, Vol. 24, pp. 161–176, doi: 10.3727/108354219X15525055915518.
Popova, O.L., Koval, V. V., Mikhno, I.S., Haltsova, O.L. and Asaulenko, N. V. (2020), "Assessments of national tourism development in terms of sustainability and inclusiveness", *Journal of Geology, Geography and Geoecology*, Oles Honchar Dnipropetrovsk National University, Vol. 29 No. 2, pp. 377–386, doi: 10.15421/112033.
Porter, M.E. and Kramer, M.R. (2006), "Strategy and society: the link between competitive advantage and corporate social responsibility", *Harvard Business Review*, Vol. 1–14 No. 5, doi: 10.1108/sd.2007.05623ead.006.
Putnam, R.D. (1995), "Bowling Alone: America's Declining Social Capital", *Journal of Democracy*, Vol. 6 No. 1, pp. 65–78, doi: 10.1353/jod.1995.0002.
Qu, M. and Zollet, S. (2023), "Rural Art Festivals and Creative Social Entrepreneurship", *Event Management*, Vol. 27 No. 8, pp. 1219–1235, doi: 10.3727/152599523X16830662072107.
Ribeiro, T.D., Ferreira, P.A. and Vaz, M.J. (2018), "Creating shared value in Rock in Rio business model case study", *13th Iberian Conference on Information Systems and Technologies (CISTI)*, pp. 1–6, doi: 10.23919/CISTI.2018.8399348.
Rickard, N.S., Lewis, K., Ballantyne, J. and Dingle, G. (2025), "The unifying power of live music events: A systematic review of social outcomes for audience members", *Musicae Scientiae*, SAGE Publications Ltd, doi: 10.1177/10298649251349703.
Rockström, J. and Sukhdev, P. (2016), "The SDGs wedding cake", available at: https://www.stockholmresilience.org/research/research-news/2016-06-14-the-sdgs-wedding-cake.html (accessed 16 December 2022).
Safari, D., Glow, H., Noblet, A. and Pyman, A. (2021), "Exploring the impact of an economic-centric approach to evaluating cultural activities: Evidence from a regional music festival", *Australian Journal of Public Administration*, John Wiley and Sons Inc, Vol. 80 No. 3, pp. 407–423, doi: 10.1111/1467-8500.12468.
Salvemini, S., Sartoris, C. and Riccardi, A. (2022), "Assessing a DIY Toolkit to Measure the Economic Impact of Festivals at the National Level: Evidence From 19 Jazz Festivals in Italy", *International Journal of Arts Management*, Vol. 24 No. 2, pp. 27–51.
Sarnacchiaro, P., Micera, R., Simonetti, B. and Ciuffreda, R. (2024), "Residents' attitudes towards tourism development: evaluation and management in Matera city destination", *Quality & Quantity*, doi: 10.1007/s11135-024-01853-6.
Seaman, B. (2003), "Economic impact of the arts", in R. Towse (Ed.), *A Handbook of Cultural Economics*, pp. 224–231.
Sherwood, P. (2007), *A Triple Bottom Line Evaluation of the Impact of Special Events: The Development of Indicators*, Thesis Dissertation, Victoria University.
Son, E.-I. and Song, J.-S. (2013), "A Study on the Application of PDCA Cycle for Performance Management of Promotion Project for Local Industry", *Journal of Korean Society of Rural Planning*, Vol. 19, doi: 10.7851/ksrp.2013.19.2.139.
Teixeira, M.J., Lima Coelho, S., Cunha, M. and Seixas, C. (2025), "The socioeconomic impact of a music festival on a community: The case of Bons Sons in Cem Soldos village", *CIDADES, Comunidades e Territórios*, doi: 10.15847/cct.36713.
Torres-Díaz, V., del Río-Rama, M. de la C., Álvarez-García, J. and Simonetti, B. (2025), "Environmental sustainability and tourism growth: convergence or compensation?", *Quality & Quantity*, Vol. 59 No. 3, pp. 2129–2152, doi: 10.1007/s11135-024-01906-w.
UK Department for Business Energy & Industrial Strategy. (2020), "Greenhouse gas reporting: Conversion factors 2019. Government of UK", *Government of UK*.
Vujičić, M.D., Stankov, U., Pavluković, V., Štajner-Papuga, I., Kovačić, S., Čikić, J., Milenković, N., *et al.* (2023), "Prepare for Impact! A Methodological Approach for Comprehensive Impact Evaluation of European Capital of Culture: The Case of Novi Sad 2022", *Social Indicators Research*, Springer Science and Business Media B.V., Vol. 165 No. 2, pp. 715–736, doi: 10.1007/s11205-022-03041-1.

Werner, K., Griese, K.M. and Faatz, A. (2020), "Value co-creation processes at sustainable music festivals: a grounded theory approach", *International Journal of Event and Festival Management*, Emerald Group Holdings Ltd., Vol. 11 No. 1, pp. 127–144, doi: 10.1108/IJEFM-06-2019-0031.

Wu, J. and Wu, Y. (2023), "From Participation to Consumption: The Role of Self-Concept in Creating Shared Values Among Sport Consumers", *Psychology Research and Behavior Management*, Vol. 16, pp. 1037–1050, doi: 10.2147/PRBM.S406346.

Yu, Y. and Turco, D.M. (2000), "Issues in Tourism Event Economic Impact Studies: The Case of the Albuquerque International Balloon Fiesta", *Current Issues in Tourism*, Vol. 3 No. 2, pp. 138–149, doi: 10.1080/13683500008667870.

Zamzuri, N.H., Azizi, N.F.A. and Hanafiah, M.H. (2023), "Research note: Tourism event sustainability and value creation", *Journal of Convention and Event Tourism*, Routledge, doi: 10.1080/15470148.2023.2231623.

Table I. Summary of Methods

Analysis	Method		Data	Source
Economic impact	Effects Method or Economic Impact Studies	Direct costs	Expenses incurred by the organisation	Organisation's budgets
		Indirect costs	Expenses from non-local participants	Participants' questionnaire and Organisation's budgets
		Induced costs	Sectorial multipliers	Input-output tables
Sociocultural impact	Contingent Valuation	Non-use value	WTP local residents	Residents' questionnaire
			WTA local residents	
		Use value	AT from non-local attendees	Participants' questionnaire
Environmental impact	Carbon Footprint measurement	CO_2 emissions	Kg of CO2 equivalent	Calculator
Synthetic index construction	Weighted aggregation	Number of SDGs in each category identified as locally relevant	Valuation given by the local residents	Residents' questionnaire

Source: Authors own work.

Table II. Internal consistency of perceived impact scale by stakeholder group

Item	r.drop (Participants)	r.drop (Residents)
Knowledge of the area	0.51	0.49
Attraction of tourism to the area	0.60	0.71
Reputation of the local residents	0.53	0.80
Union between the different towns in the area	0.61	0.66
Quality of life of the local residents	0.63	0.77
Natural environment of the area	0.47	0.79
Creation of wealth for businesses in the area	0.61	0.79
Artistic and cultural development of the area	0.49	0.57

Note: Corrected item–total correlations (r.drop) above 0.30 indicate satisfactory contribution of each indicator to the overall scale.

Source: Authors own work.

Table III. Samples characteristics

Variable	Residents (N=64)	Participants (N=470)
Gender		
Male	52%	33%
Female	45%	66%
Another	0%	0%
I would rather not disclose it	3%	1%
Age		
< 25 years old	22%	11%
25 - 39 years old	17%	62%
40 - 55 years old	22%	24%
56 - 65 years old	25%	3%
> 65 years old	14%	0%
Employment situation		
Self-employed	13%	7%
Unemployed	6%	3%
Salaried employee	44%	80%
Student	17%	9%
Houseperson	0%	0%
Retiree	19%	1%
Other	2%	0%
Level of studies		
Pre-university studies	52%	23%
University studies	48%	78%
Residence		
Hacinas	86%	0%
Surrounding area	14%	11%
Province of Burgos		39%
In another location		51%
Are you familiar with the event?		
No	3%	
Yes	78%	
I am a volunteer	19%	
Reason for going to Hacinas		
Mainly for the festival (non casual)		91%
For another reason (casual)		9%

Source: Authors own work.

Table IV. Expenditure categories across economic impact effects

Direct effects	Indirect effects		Induced effects
	Outside the festival	Inside the festival	
Artistic costs	Culture/Leisure outside the festival Other purchases	Tickets	Creative, artistic and performing arts activities; Sports, recreational and entertainment activities; Associative activities (1.33)
Accommodation for artists and organisation	Accommodation		Accommodation services (1.61)
	Off-site bars and restaurants	Festival bars	Food and beverage services (1.84)
	Transportation Gas stations		Land transport (1.96)
		Festival Merchandising	Graphic arts and reproduction of recorded media (1.71)
		Craft stalls	Retail trade (1.65)
Sound, lighting, stage and backline. Insurance, medical care and other preventive expenses.			Specialised construction activities (2.17) Security activities (1.36)
Electricity, toilets, other infrastructure costs (e.g. petrol)			Electricity, gas, steam and air conditioning supply (1.91)
Promotion			Advertising and market research (1.58)
Other costs (consultancy, taxes, POS fees)			Office administrative activities and other business support activities
22%	15%	24%	40%

Source: Authors own work.

Table V. Environmental impacts accounted for and monetization approaches

		Monetisation alternatives	
	Tons of CO_2 eq.	EU ETS market on date (60-80 EUR)	EU environmental prices handbook (130 EUR)
Travel	400.7465	28,052.25	52,097.04
Hospitality	6.5204	456.43	847.65
Food	3.4802	243.61	452.42
Space	0.8424	58.97	109.51
Promotional material	2.8044	196.31	364.57
	414.393	**€ 29,007.57**	**€ 53,871.20**

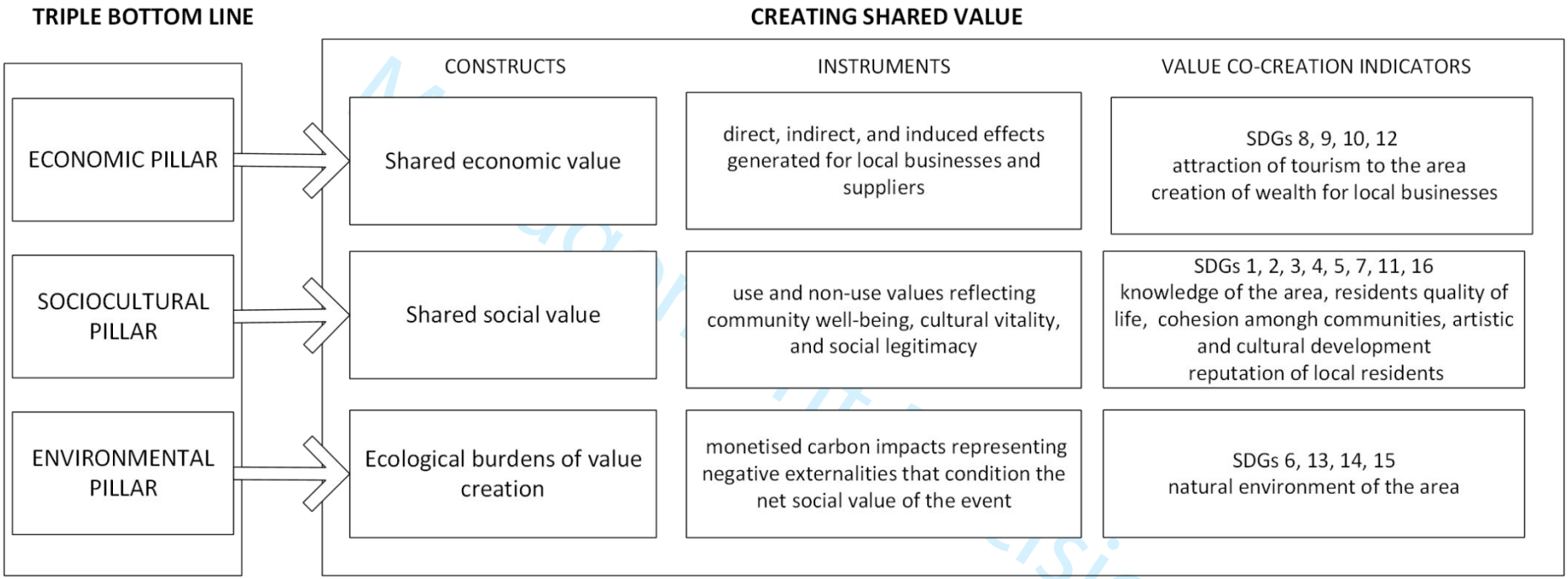
Source: Authors own work.

Table VI. Average number of checked and unchecked SDGs and normalized values by category

	Economic	Social	Environmental
AvgC-SDGs	2.14	2.02	1.78
AvgU-SDGs	1.86	1.98	2.22
$i = \left(\frac{1/3}{4}\right) \times \text{AvgC} - \text{SDGs}$	0.18	0.17	0.15
$j = \left(\frac{1/3}{4}\right) \times \text{AvgU} - \text{SDGs}$	0.15	0.17	0.18

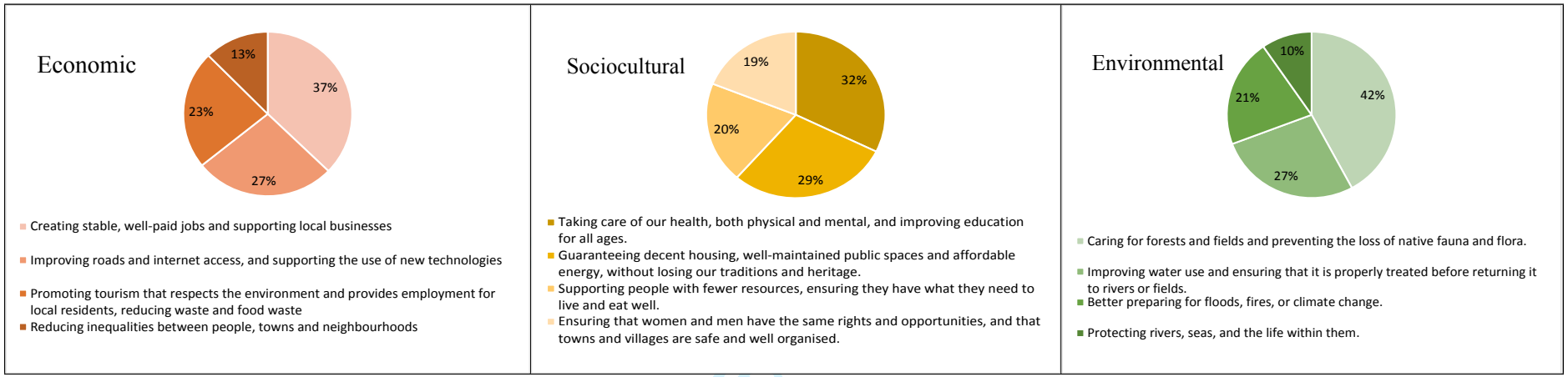
Source: Authors own work.

Figure 1. Mapping of Creating Shared Value (CSV) and Triple Bottom Line (TBL) constructs to the building of the method



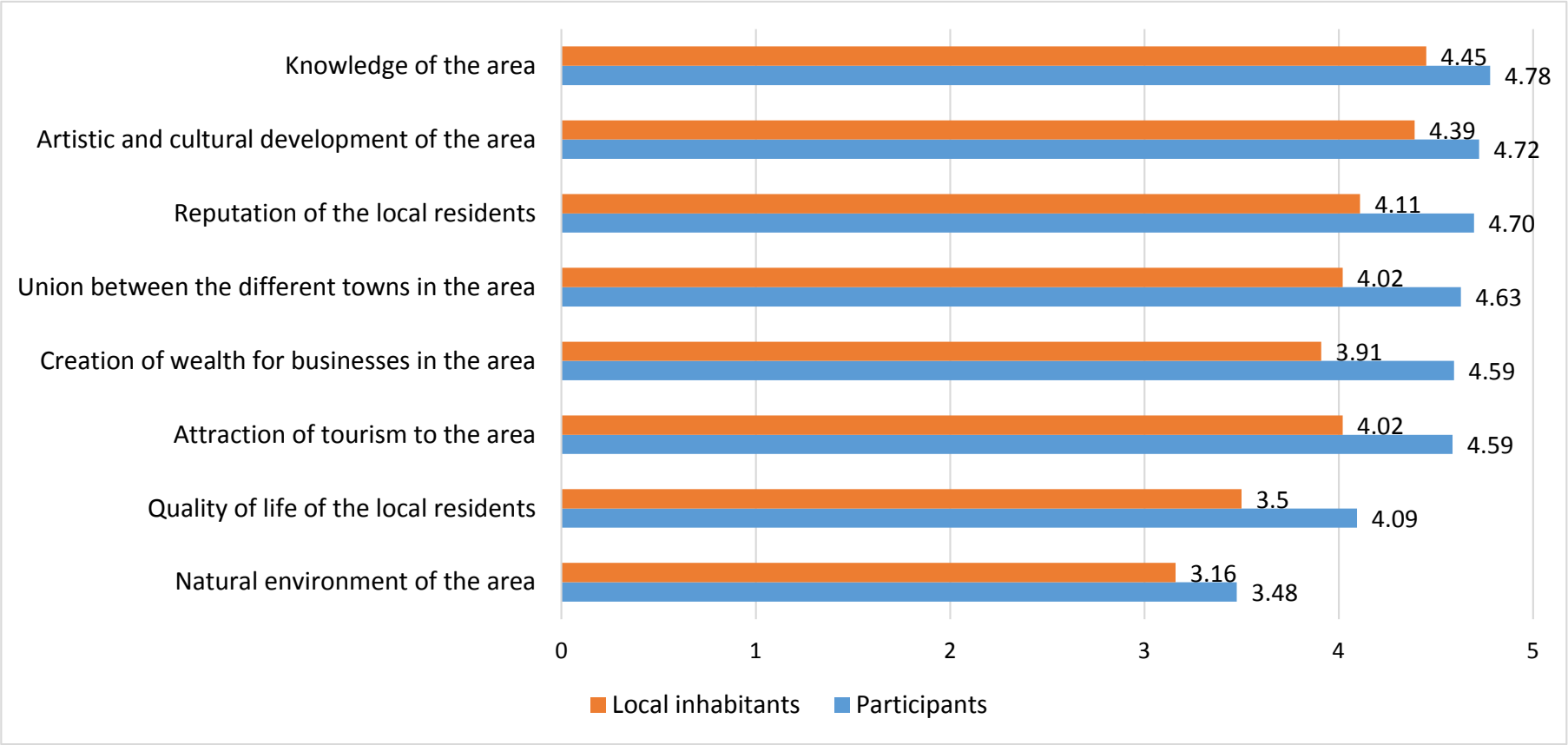
Source: Authors own work.

Figure 2. SDG-related priorities for local development (residents' responses)



Source: Authors own work.

Figure 3. Stakeholders' perceptions of the festival's impact (1 = very negative; 5 = very positive)



Source: Authors own work.