# Understanding sport events organisational elements and impacts from the organiser and residents' perspective

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**Abstract**

**Purpose –** Sustainable sport tourism events require careful planning that considers all stakeholders' needs to enhance benefits and reduce negative impacts. This study, based on data from 670 respondents in Poreč and Zagreb (Croatia, Europe), hosts of major triathlon and skiing events in 2022 and 2024, examines the relationship between event impacts and organisational elements from the perspectives of organisers and residents. **Methodology –** Exploratory factor analyses was used to identify the dimensions of the impact of events and organizational elements. T-tests were used to analyse differences between the perception of two groups of stakeholders, and Pearson's correlations were used to identify links between the impact of events and organizational elements. **Findings –** Six dimensions of impact and three dimensions of organizational elements were identified, with event organizers and residents having different perceptions of these dimensions. There is a strong positive correlation between all three organizational elements and sociocultural, economic and reputational impacts, while environmental and safety principles, along with legacy planning, were mostly associated with organizational costs. **Implications –** Understanding these differing perceptions and their relationship to specific impacts can help organisers and policymakers develop more effective strategies to achieve sustainable outcomes.

**Keywords:** sporting events, impacts, sustainability, organisational elements, stakeholders
**JEL classification:** M20, Z20, Z32

# Razumevanje organizacionih elemenata sportskih događaja i njihovog uticaja iz perspektive organizatora i stanovnika

**Sažetak**

**Svrha –** Održivi sportsko-turistički događaji zahtevaju pažljivo planiranje koje uzima u obzir potrebe svih stejkholdera kako bi se povećale koristi i smanjili negativni uticaji. Ovo istraživanje, zasnovano na podacima 670 ispitanika iz Poreča i Zagreba (Hrvatska, Evropa), domaćina velikih triatlonskih i skijaških događaja u 2022. i 2024. godini, ispituje odnos između uticaja događaja i organizacionih elemenata iz perspektive organizatora i stanovnika. **Metodologija –** Eksploratorna faktorska analiza korišćena je za identifikaciju dimenzija

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uticaja događaja i organizacionih elemenata. T-testovi su korišćeni za analizu razlika u percepciji između dve grupe stejkholdera, dok su Pirsonove korelacije korišćene za identifikaciju veza između uticaja događaja i organizacionih elemenata. **Rezultati** – Identifikovano je šest dimenzija uticaja i tri dimenzije organizacionih elemenata za koje su organizatori događaja i stanovnici imali različite percepcije. Postoji snažna pozitivna korelacija između sva tri organizaciona elementa i sociokulturnih, ekonomskih i reputacionih uticaja, dok su ekološki i bezbednosni principi, zajedno sa planiranjem nasleđa, uglavnom povezani sa organizacionim troškovima. **Implikacije –** Razumevanje ovih različitih percepcija i njihovog odnosa sa specifičnim uticajima može pomoći organizatorima i donosiocima odluka da razviju efikasnije strategije za postizanje održivih ishoda.

**Ključne reči:** sportski događaji, uticaji, održivost, organizacioni elementi, stejkholderi
**JEL klasifikacija**: M20, Z20, Z32

## 1. Introduction

Sport plays a vital role in tourism since it is an important motive for travel and content of stay (Perić et al., 2019). As a specific type of tourism, sport tourism is offering both active and passive forms of engagement (Buning & Gibson, 2016). In addition, sporting events are recognized as one of the most prominent products within the sport tourism (Poczta et al., 2020). These events involve numerous stakeholders such as organising teams, competitors, spectators and residents, each with unique roles and expectations (Wanyonyi et al., 2021). Organisers often focus on financial viability, while residents prioritize minimising negative impacts and maximising community benefits (Chersulich Tomino et al., 2020). Sporting events are indeed recognised as catalysts for social and economic development (Perić, 2018; Teixeira et al., 2023), but these positive outcomes do not occur by chance. Strategic planning and effective implementation are key to delivering sustainable events that balance social, economic, and environmental impacts (Duignan et al., 2023; McGillivray et al., 2020).

For structuring a sustainable sporting event, a business model approach that explains how value is created, delivered, and captured, offers a practical framework for structuring sustainable sporting events (Lorenz et al., 2024; Perić et al., 2018). Defining business model elements: resources, actions, and desired community outcomes, early in the planning phase aligns strategies with stakeholders shared goals (Kim & Kaplanidou, 2019). Pre-event period is particularly critical in laying the groundwork for long-term legacies (Mair & Smith, 2021). A shared understanding of stakeholder interests enhances strategy development and long-term community support (Byun et al., 2021; Hutte et al., 2022; Isa et al., 2024). Existing literature also links sustainability and legacy planning with event success (Parra-Camacho et al., 2023; Pourpakdelfekr & Oboudi, 2022), and practical frameworks like the Gold Framework (UK Sport, 2018) and Olympic Agenda 2020+5 (IOC, 2021) integrate sustainability principles. However, the connection between specific organisational elements that are the part of planning stage and resulting impacts remains underexplored.

This study fills a gap in current research by examining the relationship between organisational elements, particularly business model components, and the specific social, economic, or environmental impacts of outdoor sporting events. It aims to understand: (1) organisers and residents' perception of the importance and the intensity of the impacts as well as organisational elements of events, (2) whether there are differences between these two groups in their perception, and (3) whether the perceived importance of certain organisational elements correlates with the perceived importance of impacts. This study therefore builds on recent research exploring residents' views of major sporting events (Feilhauer et al., 2023, 2024) as well as mega events in general (Kovačević et al., 2024).

Focusing on organisers and residents, considered the key stakeholders in long-term sustainability, the study excludes short-term visitors, who may lack insights into lasting community effects (Basham et al., 2024). Understanding the differing perceptions helps organisers tailor strategies that generate the desired outcomes while securing local support, crucial for sustaining future event editions.

## 2. Literature review

### 2.1. Sporting event impacts

Sporting events generate a wide range of short- and long-term economic, socio-cultural, and environmental impacts (Matsuoka et al., 2024; Parra-Camacho et al., 2023). Positive impacts include increased sport participation (Storm & Denstadli, 2024), improved quality of life (Yanling et al., 2021), social cohesion (Zhou & Kaplanidou, 2018), community pride (Mutz & Gerke, 2024), and cultural exchange (Kobierecki & Strożek, 2021) to residents. Negative impacts are increasingly acknowledged too. These include financial burdens such as high organisational costs, increased taxes, and living expenses, as well as social issues like traffic congestion, crime, and resident-visitor conflicts (Ahmed, 2017; Elahi et al., 2021). Environmental concerns, particularly for events in fragile outdoor spaces, include $CO_2$ emissions, waste, and pollution (Grofelnik et al., 2023). While events are often promoted as drivers of development and progress, poor planning and limited community involvement can limit their long-term value (Duignan et al., 2023). As Martins et al. (2024) note, the pursuit of global visibility may overshadow local needs. Thus, strategic planning focused on legacy and community benefit is essential to ensure that sporting events contribute meaningfully to sustainable development and leave lasting, positive impacts for future generations (Koenigstorfer et al., 2023).

### 2.2. Building blocks for sustainable sporting events

The concept of the business model gained academic traction in the 1990s, initially focusing on value creation and capture for organisations (Lorenz et al., 2024). It later expanded to include environmental and community perspectives. Stubbs and Cocklin (2008) introduced the Sustainability Business Model (SBM), integrating ecological, social, and economic goals into business strategies. In sports tourism and events, SBM principles have guided planning, implementation, and legacy development (Perić et al., 2018). Much of the existing research has focused on event-specific features, such as entertainment, amenities, and activities, that influence participation and satisfaction (Aicher & Newland, 2018; Buning & Gibson, 2016). Practical sustainability frameworks, like Olympic Agenda 2020+5 (IOC, 2021), offer broader guidance. Zhang and Park (2015) identified five success factors for sustainable outdoor events: human health and education, legacy planning, natural resource conservation, policy integration, and monitoring. They emphasized social and cultural legacies, community involvement, and economic contributions. These elements support urban regeneration and environmental preservation. As key decision-makers, event organisers play a crucial role in engaging communities and building stakeholder networks. However, research on planning sustainable sporting events, particularly in environmentally sensitive open areas, remains limited and requires further attention.

### 2.3. Stakeholders of sporting events

Organising sporting events involves a diverse network of stakeholders contributing to planning, execution, and legacy (Wanyonyi et al., 2021). These stakeholders, ranging from

organisers to local communities, play key roles in driving economic growth, cultural exchange, and social engagement (Chang et al., 2020; Rejón-Guardia et al., 2020). Effective event delivery depends on addressing all stakeholder interests and forming a cohesive organising team (Swart et al., 2018). Crucially, local support is essential, especially for events that rely on public institutions, companies, and volunteers (Buning & Gibson, 2016). Residents may engage as volunteers, subcontractors, contestants, or spectators, contributing significantly to event success (Bazzanella et al., 2019). Even passive residents, though less involved, are often highly aware of the event's effects (Herbold et al., 2020). As Johnston et al. (2023) note, community support depends on how well residents perceive the balance of benefits and costs. Given the limited insight of short-term visitors, this study focuses on organisers and residents as the key stakeholders in understanding event impacts and sustainability.

### 2.4. Hypothesis development

The Social Exchange Theory (SET) offers a relevant framework for analysing stakeholder interactions in management of tourism and sporting events. SET views social change as a process of negotiated exchanges, where participation is driven by anticipated benefits (Hritz & Ross, 2010). In the context of sporting events, this theory explains how organisers and residents form attitudes based on their perceived benefit–cost balance. When benefits outweigh costs, support is likely, otherwise, opposition may grow (Ahmed, 2017; Matsuoka et al., 2024).

Stakeholders engage in events differently and thus have varying expectations. Organisers and local authorities, often responsible for financing, typically focus on the economic viability of events and may overemphasise potential economic returns, especially for large-scale events (Perić & Vitezić, 2023). However, they are also expected to consider broader social and economic benefits such as increased tourism, local investment, and employment (Parra-Camacho et al., 2023). Event deficits may stem not only from mismanagement but also from political pressures (Becker et al., 2023). From the residents' perspective, infrastructure costs may be viewed less as a burden and more as a long-term legacy. Even with minimal direct economic benefits, communities often value increased pride, cohesion, visibility, and long-term development (Custódio et al., 2018). Residents commonly see media exposure and international recognition as significant indirect benefits (Mair et al., 2023). Since stakeholders assess and prioritise event impacts through the lens of their roles and interests (Bazzanella et al., 2019; Orthodoxou et al., 2021), the following hypotheses are proposed:

$H_1$: There is a statistically significant difference between residents and organisers in their perception of the importance of individual impacts of outdoor sporting events.

$H_2$: There is a statistically significant difference between local population and organisers in their perception of the intensity of a certain impact of outdoor sports events.

To ensure sustainable success, event organisers must focus on business model elements that align with shared goals. This involves setting clear objectives, implementing strategic actions, and evaluating results (Mascarenhas et al., 2024). Attendee satisfaction, driven by attractions, entertainment, safety, and environmental measures, also shapes participation and loyalty (Perić et al., 2019; Zhang & Park, 2015). Basic organisational needs, such as marketing, safety, and waste management, are considered essential. However, stakeholders view these elements differently. Organisers might prioritise public communication and sustainable procurement (Jones, 2017; Siakwah et al., 2020), while residents often focus on community involvement (Alananzeh et al., 2022).

$H_3$: There is a statistically significant difference between the perception of local population and the organisers about elements necessary for the organisation of sustainable outdoor sporting events.

Finally, when someone perceives a specific type of impact as most important during the initial preparatory phase of a sporting event, they will prioritise relevant elements and attributes that directly contribute to achieving that impact (Chersulich Tomino et al., 2020; Kerschbaum, 2022). For example, for someone who finds the improvement of urban development in the host destination as the most important impact of the event, parts of event planning related to urban renewal and regeneration or encouragement of participants to get involved should be perceived as more important than other elements (Kerschbaum, 2022). Therefore, the following hypothesis is posed:

$H_4$: There is a correlation between the importance of impacts of sport-tourism events perceived by key stakeholders and the importance of some elements necessary for the organisation of sustainable sporting events.

## 3. Methodology

### 3.1. Research context

The empirical research was conducted in two Croatian cities, Poreč and Zagreb, during major international sporting events: the *Plava Laguna IRONMAN 70.3 Poreč* in October 2022 and the *Snow Queen Trophy* skiing event in January 2023. These outdoor events differ in sport type but are similar in scale and regional importance. Ironman in Poreč, the largest triathlon in Central and Eastern Europe in 2022, included swimming (1.9 km), cycling (90 km), and running (21 km). The Snow Queen Trophy, part of the FIS World Cup, took place at Sljeme hill near Zagreb, Croatia's inland capital and largest urban centre. While Poreč is a coastal city focused on summer tourism business season and holidays, Zagreb is an urban hub and city break destination. However, both cities have hosted international events multiple times and share a strong tourism economy. This makes residents of these two cities experienced hosts and their perception more valuable.

### 3.2. Questionnaire design

This research was conducted using a questionnaire developed in Croatian, which included three sections relevant to this study. The first section assessed how respondents perceived the intensity of a certain impact of the hosted sporting event and how important they considered each impact, using statements adapted from Lesjak et al. (2014), and Perić (2018) (e.g., "The trade for local businesses increased"). The second section focused on elements necessary for organising sustainable sporting events, based on Zhang and Park (2015) and tailored to the local context (e.g., "A recycling program was implemented at the event"). Respondents rated their agreement (1 = strongly disagree to 5 = strongly agree) and importance (1 = least important to 5 = most important) on a five-point Likert scale. The third section gathered demographic data, including age, gender, education, occupation, and the respondent's role or involvement in the event.

### 3.3. Data collection

The questionnaire was distributed after the events in Poreč (October 2022–January 2023) and Zagreb (January–May 2023), targeting two key stakeholder groups: the event organising team and residents. Participation was voluntary. Trained field researchers approached

passers-by in public areas, asking if they were residents. Both tourists and non-residents were excluded. Willing residents completed the questionnaire on the spot or received a QR code link. Organisers were asked to complete the questionnaire after fulfilling their event responsibilities. In total, 714 questionnaires were collected, with 670 fully completed and valid for analysis—240 from the Ironman and 430 from Snow Queen.

### 3.4. Sample profile

Regarding the respondents from the Ironman event, 210 (87.5%) were residents and 30 (12.5%) were organisers, while Snow Queen included 405 (94.2%) residents and 25 organisers (5.8%). Gender representation was balanced, with slightly more men than women. There were 125 men (52.1%) and 115 (47.9%) women at Ironman and 218 (50.7%) men and 212 (49.3%) women at Snow Queen. Most respondents were adults aged 19–54, especially in the 25–44 range. Educational levels were high overall with more than 47% of respondents with academic degree. Ironman had 156 (65%) respondents and Snow queen had 250 (58%) respondents with at least an academic degree. Professionally, the majority worked in the private sector (46%, 121 in Ironman and 188 in Snow Queen) and public sector employees were the second-largest group (21%). There were also students, retirees, unemployed individuals, and others with diverse roles. The data reflects a highly educated, working-age population with a nearly equal gender split and a strong mix of residents and organisers. Both events successfully engaged a broad cross-section of the community.

### 3.5. Data Analysis

Descriptive analysis was used to examine the characteristics of the study sample. Exploratory Factor Analysis (EFA) with direct oblimin rotation and Principal Axis Factoring was applied to reduce 33 impacts and 22 organisational elements. The Kaiser criterion (eigenvalues ≥1) guided factor retention (Meyers et al., 2006). Bartlett's Test of Sphericity (p < .000) and the Kaiser-Meyer-Olkin (KMO) measure confirmed data suitability, with KMO values of .933 (elements) and .921 (impacts) (Kaiser, 1974). In phase two, only factor loadings above 0.40 were retained. In phase three, factors with at least two items were kept, aligning with literature that allows two-item factors in some cases (Chaieb & Chaieb, 2023; Nemec Rudež, 2023). The EFA process refined the factor structure by removing or merging items to improve validity (Mitchell & Greatorex, 1993). Despite unequal respondent group sizes, data showed normal distribution. A bivariate parametric t-test (H1–H3) assessed significant group differences, and Cohen's d-value was used to indicate practical significance and distribution overlap (Cohen, 1988). Finally, the Pearson correlation test was applied to measure the relationship between organisational elements and event impacts (H4), as perceived by stakeholders.

## 4. Results

### 4.1. Differences between perceived impacts of local population and organising team

Exploratory Factor Analysis (EFA) identified 31 items across six factors with eigenvalues >1, explaining 72.484% of the variance. Two items with low factor loadings (<0.4) were removed to enhance validity and interpretability. The resulting dimensions of event impacts were: Economic and socio-cultural benefits (12 items), Environmental, social, and economic concerns (8 items), Traffic disorders (3 items), Destination image and reputation (2 items), Organisational costs (2 items), and Community pride and identity (4 items). These factors represent key impact areas of the two analysed outdoor sporting events.

Table 1: Differences between two groups in their perception of the importance of impact

| Organising and holding events… | Organising team (N=55) | | Residents (N=650) | | t | p (2-tailed) | Cohen's d |
|---|---|---|---|---|---|---|---|
| | M | SD | M | SD | | | |
| 1. ECONOMIC AND SOCIO-CULTURAL BENEFITS | 3.96 | .689 | **4.62** | .766 | -2.810 | .005 | .906 |
| The trade for local business increased | 4.07 | .836 | 4.27 | .882 | -1.608 | .108 | .233 |
| The economic conditions of the host destination have improved. | 4.05 | 1.096 | 4.27 | .884 | -1.396 | .168 | .221 |
| The employment opportunities for residents were created. | 3.85 | .911 | **4.24** | .934 | -2.930 | .004 | .423 |
| The understanding between cultures and societies has increased. | 3.71 | 1.165 | **4.22** | .939 | -3.148 | .003 | .428 |
| Communication, cultural and intellectual exchange with peoples from other countries have improved. | 3.84 | .977 | **4.29** | .879 | -3.616 | .000 | .484 |
| The number of tourists in a host destination has grown. | 4.35 | .799 | 4.33 | .814 | .163 | .871 | .025 |
| New knowledge and learning opportunities were provided to the local population. | 3.65 | 1.109 | **4.19** | .943 | -3.450 | .001 | .524 |
| The urban development in the host destination has generally improved. | 3.49 | 1.184 | **4.15** | .943 | -4.032 | .000 | .617 |
| An incentive for the preservation of local culture was provided. | 3.55 | 1.214 | **4.20** | .960 | -3.909 | .000 | .594 |
| The visibility of the host destination in the media has improved. | 4.42 | .832 | 4.24 | .885 | 1.472 | .142 | .214 |
| Information about the host community in the world has increased. | 4.29 | .854 | 4.28 | .874 | .118 | .906 | .012 |
| The need for volunteer work in the host destination has increased. | 3.93 | 1.103 | **4.25** | .897 | -2.471 | .042 | .318 |
| 2. ENVIRONMENTAL, SOCIAL AND ECONOMIC CONCERNS | **2.71** | 1.186 | 2.02 | 1.106 | 4.417 | .000 | .602 |
| The air pollution level in the host destination has increased. | **2.60** | 1.448 | 2.01 | 1.272 | 2.940 | .005 | .433 |
| Public disorder, vandalism and hooliganism have increased in the host destination. | **2.38** | 1.509 | 1.81 | 1.143 | 2.757 | .008 | .426 |
| The noise level in the host destination has increased. | **2.51** | 1.345 | 1.95 | 1.189 | 2.990 | .004 | .411 |
| The degradation and destruction of natural resources in the host destination have increased. | **2.80** | 1.580 | 2.02 | 1.307 | 3.534 | .001 | .538 |
| The prices of goods and services in the local community have increased. | **2.64** | 1.406 | 2.10 | 1.250 | 2.730 | .008 | .406 |
| Cultural conflicts between visitors and locals were generated. | **2.71** | 1.511 | 1.92 | 1.163 | 3.772 | .000 | .586 |
| The prices of local products and services at the venue have increased (food, drinks, souvenirs). | **2.75** | 1.456 | 2.15 | 1.298 | 2.909 | .005 | .435 |
| The amount of waste in the host destination has increased. | **3.27** | 1.326 | 2.16 | 1.333 | 5.939 | .000 | .835 |
| 3. TRAFFIC DISORDERS | **3.17** | 1.250 | 2.23 | 1.283 | 5.216 | .000 | .742 |
| The traffic jams in the host destination have increased. | **3.29** | 1.370 | 2.26 | 1.338 | 5.480 | .000 | .761 |
| The road closures/disruptions have increased in the host destination. | **3.35** | 1.280 | 2.23 | 1.337 | 5.959 | .000 | .856 |
| The availability of parking spaces in the host destination has decreased. | **2.87** | 1.402 | 2.20 | 1.317 | 3.585 | .000 | .493 |
| 4. DESTINATION IMAGE AND REPUTATION | 4.46 | .6726 | 4.36 | .772 | .977 | .329 | .138 |
| The positive image of the host destination in the world has improved. | 4.53 | .716 | 4.36 | .791 | 1.475 | .141 | .225 |
| The reputation of the host destination on the international level was strengthened. | 4.40 | .784 | 4.35 | .806 | .417 | .677 | .063 |
| 5. ORGANISATIONAL COSTS | **3.65** | 1.054 | 2.30 | 1.390 | 7.023 | .000 | 1.095 |
| The costs for preparing the sport venue for holding the event are high. | **3.69** | 1.136 | 2.31 | 1.415 | 8.431 | .000 | 1.076 |
| The costs for the new infrastructure needed to organise the event are high. | **3.62** | 1.080 | 2.30 | 1.402 | 8.465 | .000 | 1.055 |
| 6. COMUNITY PRIDE AND IDENTITY | 3.93 | .972 | 4.19 | .864 | -1.896 | .063 | .283 |
| Pride within the local community was strengthened. | 3.96 | 1.122 | 4.14 | .990 | -1.239 | .216 | .170 |
| The community spirit has strengthened. | 3.91 | 1.023 | **4.20** | .915 | -2.262 | .024 | .299 |
| The feeling of belonging to the community is strengthened. | 3.82 | 1.188 | **4.15** | .979 | -2.009 | .049 | .322 |
| The local community's identity was supported. | 4.04 | .962 | 4.27 | .865 | -1.703 | .094 | .251 |

Source: Authors' research

Table 1 shows that the organising team rated the importance of negative economic and environmental impacts slightly higher, with significant differences on Environmental, social, and economic concerns, Traffic disorders, and Organisational costs, though overall mean values were low. Residents rated Economic and socio-cultural benefits and Community pride higher, supporting H1.

Statistically significant differences (p < 0.05) were found between organisers and residents in their perceptions of intensity of impact. Residents rated cultural exchange, learning, and cultural preservation higher, while organisers rated destination image and waste increase higher (Table 2; only statistically significant results were shown). These findings support H2.

Table 2: Differences between two groups of stakeholders in their perception of the intensity of the impact

| Organising and holding events… | Organising team (N=55) | | Residents (N=615) | | t | p (2-tailed) | Cohen's d |
|---|---|---|---|---|---|---|---|
| | M | SD | M | SD | | | |
| 1. ECONOMIC AND SOCIO-CULTURAL BENEFITS | 3.87 | .746 | 3.96 | .814 | -.803 | .422 | .115 |
| Communication, cultural and intellectual exchange with peoples from other countries have improved. | 3.80 | 1.026 | **4.10** | .981 | -2.159 | .031 | .178 |
| New knowledge and learning opportunities were provided to the local population. | 3.53 | 1.274 | **3.95** | 1.022 | -2.390 | .020 | .364 |
| An incentive for the preservation of local culture was provided. | 3.25 | 1.350 | **3.70** | 1.068 | -2.368 | .021 | .370 |
| 2. ENVIRONMENTAL, SOCIAL AND ECONOMIC CONCERNS | 2.23 | 1.106 | 1.98 | .995 | 1.663 | .101 | .238 |
| The amount of waste in the host destination has increased. | **2.87** | 1.428 | 2.18 | 2.463 | 2.058 | .040 | .650 |
| 3. TRAFFIC DISORDERS | 2.92 | 1.359 | 3.26 | 1.195 | -2.004 | .045 | .266 |
| 4. DESTINATION IMAGE AND REPUTATION | **4.33** | .818 | 3.73 | 1.193 | 4.998 | .000 | .587 |
| The positive image of the host destination in the world has improved. | **4.36** | .825 | 3.75 | 1.215 | 5.040 | .000 | .587 |
| The reputation of the host destination on the international level was strengthened. | **4.29** | .875 | 3.70 | 1.229 | 4.611 | .000 | .553 |
| 5. ORGANISATIONAL COSTS | 3.44 | 1.217 | 3.25 | 1.426 | .945 | .345 | .143 |
| 6. COMUNITY PRIDE AND IDENTITY | 3.71 | 1.106 | 3.59 | .947 | .894 | .372 | .117 |

Source: Authors' research

To check how homogenous residents and organisers are, we have further split these two groups based on events to test differences between (i) perception on impacts of organising teams and (ii) perception on impacts of local population in different destinations. Regarding organising teams, Ironman organising team perceived some items related to environmental and economic costs (air pollution, t=2.143, p= .037; noise level, t=3.356, p=.001; prices in the community, t=2.767, p=.008; prices at the venue, t=2.506, p=.015; waste, t=2.779, p=.008) and the factor Traffic disorders (t=3.543, p=.003) to a greater extent than Snow queen organising team. On the other hand, the latter are more concerned about the organisational costs (t=-3.228, p=.002) but feel the event provides the incentive for preservation of local culture as a socio-cultural benefit (t=-2.675, p=.010). Regarding residents, Poreč residents expressed considerable higher mean values for the factor Destination image and reputation (t=7.516, p=.000) and items related to pride within community (t=1.629, p=.104), community spirit (t=2.637, p=.009), feeling of belonging to community (t=2.039, p=.042), and community identity (t=2.956, p=.003), and the improvement of urban development (t=2.154, p=.032). They also recognized stronger the factor Environmental, social, and economic concerns (t=4.049, p=.000), but mean values were quite low. Zagreb residents perceived the factor Organisational costs (t=-8.849, p=.000), decreased availability of parking spaces (t=-3.100, p=.002) and employment opportunities (t=-2.803, p=.005) to a greater extent than their counterparts in Poreč.

### 4.2. Differences between stakeholders regarding their perception of organisational elements

EFA identified 20 items across three factors of perceived organisational elements with eigenvalues >1, explaining 67.803% of the variance. The factors are: Environmental and safety principles (13 items), Promotion and key stakeholders' involvement (3 items), and Legacy planning (3 items). Two low-loading items were removed to ensure the reliability and clarity of the factor structure.

Table 3 suggests that event organising team expressed higher mean values for the factor Environmental and safety principles and all related items. There were no differences between local population and organising team regarding their perception of promotional and legacy planning dimensions of organisational elements. Therefore, the H3 is accepted.

Table 3: Differences between stakeholders in their perception of the importance of organisational elements

| Organising and holding events… | Organising team (N=55) | | Residents (N=615) | | t | p (2-tailed) | Cohen's d |
|---|---|---|---|---|---|---|---|
| | M | SD | M | SD | | | |
| 1. ENVIRONMENTAL AND SAFETY PRINCIPLES | **3.20** | .842 | 2.36 | .956 | 6.276 | .000 | .933 |
| Information was provided to participants on sustainability initiative seeking their participation and cooperation. | **2.84** | 1.288 | 2.25 | 1.090 | 3.281 | .002 | .495 |
| A public communications campaign on sustainability existed. | **2.64** | 1.238 | 2.22 | 1.093 | 2.668 | .008 | .360 |
| Recycling program was present at the event. | **3.40** | 1.180 | 2.43 | 1.152 | 5.955 | .000 | .026 |
| A set of sustainability principles have been developed and adopted by local organising committee. | **3.24** | 1.154 | 2.26 | 1.122 | 6.186 | .000 | .861 |
| Controls existed to ensure the recycling programme is as successful as possible. | **2.93** | 1.230 | 2.25 | 1.088 | 4.370 | .000 | .586 |
| A set of safety protective measures have been developed by competent authorities. | **3.44** | 1.358 | 2.38 | 1.189 | 6.216 | .000 | .831 |
| The number of visitors is monitored in accordance with the instructions of the competent authorities. | **3.91** | 1.110 | 2.43 | 1.189 | 8.907 | .000 | 1.287 |
| Purchasing of local products was preferred through a sustainable procurement process. | **3.11** | 1.257 | 2.56 | 1.136 | 3.429 | .001 | .459 |
| A sustainable procurement processes existed to minimise non-recyclable waste. | **3.51** | 1.153 | 2.50 | 1.146 | 6.281 | .000 | .879 |
| The local population encouraged the initiative for the sustainability of the event. | **3.16** | 1.288 | 2.28 | 1.103 | 5.633 | .000 | .734 |
| Non-polluting public transport was used for getting to the venue. | **2.80** | 1.177 | 2.33 | 1.152 | 2.884 | .004 | .404 |
| Safety protocols existed at the venue in accordance with the recommendations of the competent authorities. | **3.98** | 1.080 | 2.55 | 1.279 | 9.261 | .000 | 1.208 |
| There were organised workshops and educations on the sustainability of events. | **2.62** | .952 | 2.26 | .960 | 2.663 | .008 | .377 |
| 2. PROMOTION AND STAKEHOLDERS' INVOLVEMENT | 4.26 | .841 | 4.32 | .702 | -.536 | .592 | .077 |
| The event was promoted through social networks. | 4.44 | .938 | 4.38 | .796 | .462 | .644 | .069 |
| The event was promoted in neighbouring countries. | 4.31 | 1.069 | 4.33 | .836 | -.214 | .862 | .021 |
| Key stakeholders were involved in the organisation. | 4.22 | .994 | 4.30 | .793 | -.695 | .487 | .089 |
| The local community was involved in the event. | 4.09 | .948 | 4.25 | .806 | -1.414 | .158 | .182 |
| 3. LEGACY PLANNING | 3.45 | 1.025 | 3.62 | .884 | -1.373 | .230 | .178 |
| Urban renewal and regeneration were parts of event planning. | 3.29 | 1.272 | 3.33 | 1.061 | -.247 | .805 | .034 |
| Biodiversity and preservation areas were parts of the event strategy. | 3.62 | 1.163 | 3.92 | 1.006 | -1.856 | .068 | .276 |
| Participants were encouraged to contribute to the local economy. | 3.44 | 1.288 | 3.62 | 1.044 | -1.016 | .314 | .154 |

Source: Authors' research

## 4.3. Correlations between key stakeholders perceived importance of impacts and elements

Table 4 shows a strong positive correlation between all three organisational dimensions and the impacts of Economic and socio-cultural benefits, Destination image and reputation, and Community pride and identity. Moderate negative correlations exist between Environmental and safety principles and Legacy planning with Traffic disorders and Organisational costs. Weak negative correlations were found with Environmental, social, and economic concerns. These findings support H4 and highlight key relationships between perceived impacts and organisational elements.

Table 4: Correlation between importance of impacts and elements

| IMPACTS / ELEMENTS | | 1. E&SCB | 2. ESEC | 3. TD | 4. DI&R | 5. OC | 6. CPI |
|---|---|---|---|---|---|---|---|
| | N | 670 | 670 | 670 | 670 | 670 | 670 |
| 1. ENVIRONMENTAL AND SAFETY PRINCIPLES | Pearson Correlation | .651 | -.296 | -.382 | .482 | -.414 | .655 |
| | p (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 |
| 2. PROMOTION AND KEY STAKEHOLDERS' INVOLVEMENT | Pearson Correlation | .653 | -.232 | -.216 | .656 | -.208 | .611 |
| | p (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 |
| 3. LEGACY PLANNING | Pearson Correlation | .671 | -.281 | -.361 | .502 | -.384 | .663 |
| | p (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 |

Note: E&SCB = Economic and socio-cultural benefits; ESEC = Environmental, social and economic concerns; TD = Traffic disorders; DI&R = Destination image and reputation; OC = Organisational cost; CPI = Community pride and identity.
Source: Authors' research

## 5. Discussion and conclusion

This study identified six dimensions through which organising teams and residents perceive the impacts of outdoor sporting events, Economic and socio-cultural benefits, Environmental, social, and economic concerns, Traffic disorders, Community image and reputation, Organisational costs, and Community pride and identity. These dimensions align well with Triple Bottom Line (TBL) models presented in prior studies (Chersulich Tomino et al., 2020).

When examining the perceived importance of these impacts (H1, Table 1), both groups rated economic and socio-cultural benefits and community pride highly, but residents gave them more importance (mean > 4.15). In contrast, organising teams focused more on organisational costs and logistics, such as traffic and parking, as these factors directly affect event operations (Ahmed, 2017). Still, these concerns were moderate in intensity. Environmental and economic issues received low importance overall, though organisers rated them slightly higher, showing awareness of potential problems like air pollution, noise, and rising local prices (see Chersulich Tomino et al., 2020; Maguire, 2022). These results further support the findings of Elahi et al. (2021), who highlighted that residents tend to understate certain negative externalities unless they directly affect quality of life, such as traffic and noise, whereas organisers anticipate a wider range of environmental and economic challenges.

However, the perception of the intensity of impact differs between the two stakeholder groups (H2, Table 2). Residents emphasized economic and socio-cultural benefits more

strongly, particularly in areas like improved communication, cultural exchange, learning opportunities, and cultural preservation, echoing findings by Parra-Camacho et al. (2023). Conversely, organising teams valued improved destination image and media exposure more, reflecting their awareness of events as marketing tools (Perić & Vitezić, 2023). They also noted higher concern over waste generation, which aligns with literature connecting sustainability and operational responsibility (Carswell et al., 2023). Further analysis revealed that there are differences in the perception of the impacts of residents and organisers of one event compared to the organisers and residents of another, confirming the complexity of stakeholder groups (Lu, 2021; Wanyonyi et al., 2021). This stakeholder-specific divergence is also in line with findings by Mair et al. (2023), who stress that mega-event impacts are often filtered through differing stakeholder values, particularly when comparing long-term residents and mobile event organisers.

To explore sustainable event organisation (H3), three core business model elements were identified, Environmental and safety principles, Promotion and key stakeholders' involvement, and Legacy planning. These partially overlap with Zhang and Park's (2015) five-dimension model but introduce a new emphasis on stakeholder involvement. Both groups agreed on the critical role of promotion and engagement, and ranked legacy planning second, with no statistical differences in perception (Table 3). Environmental and safety principles received the lowest importance ratings overall, but with statistically significant differences: organising teams showed slightly higher awareness than residents. This is concerning, as previous research warns of the environmental risks from poorly planned infrastructure and crowd management (Ahmed, 2017; Lesjak et al., 2014). Interestingly, a study by Pourpakdelfekr and Oboudi (2022) also underscores that sustainability solutions, especially environmental mitigation measures, tend to be perceived as 'add-ons' by residents unless directly connected to visible benefits.

The final part of the study examined the relationship between perceived event impacts and key organisational elements (H4). A strong positive correlation was found between all organisational dimensions and positive impacts such as economic benefits, social value, and community pride (Table 4). Notably, promotional efforts and stakeholder involvement were strongly linked to enhanced destination image and reputation. This highlights the need for strategic planning to strengthen positive event outcomes (Đurkin Badurina et al., 2021; Lu et al., 2021). Prior studies confirm that satisfaction with event attributes, beyond basic entertainment, affects participation and loyalty (Chersulich Tomino et al., 2020). Moderate negative correlations were found between environmental/safety planning and traffic concerns, and between legacy planning and event costs. This suggests that thoughtful planning in these areas can reduce logistical burdens and keep ticket prices manageable, which is key for maintaining attendance (Zarei et al., 2018). A weak negative correlation also appeared between promotion/stakeholder involvement and environmental/economic concerns. Strong communication and inclusion of stakeholders may help mitigate negative impacts and contribute to broader sustainable development goals (Parra-Camacho et al., 2023). Lastly, all organisational elements showed weak links to broader environmental, social, and economic concerns, reinforcing the idea that a holistic understanding of stakeholder needs is crucial. This supports Kerschbaum's (2022) argument that integrating diverse perspectives can improve event outcomes, enhance legacy potential, and align sporting events more closely with sustainable development principles.

This study contributes to sport, stakeholder, and sustainable event management theory by exploring the perceived impacts and strategic elements of sustainable outdoor sporting events from the perspectives of both organising teams and local communities. The proposed conceptual framework offers a foundation for future research in planning and managing such events. Unlike prior studies that focused mainly on residents, this research includes

organising teams, enriching stakeholder management theory. It highlights differing perceptions between organisers and residents, supporting calls for resident involvement in event planning (Đurkin Badurina et al., 2021; Johnston et al., 2023). Findings reveal that strategic planning across all organisational dimensions is essential for achieving positive event impacts. The study empirically confirms the relationship between stakeholders' perceptions and sustainable outcomes, reinforcing the role of sustainability in fostering support for sporting events. This supports broader goals of the 2030 Agenda, emphasizing the growing importance of aligning event management with sustainable development objectives.

Regarding managerial implications, this study offers a sustainable framework to guide event organisers and policymakers in planning and implementing outdoor sporting events. By understanding stakeholder attitudes, especially residents' perceptions of event impacts and sustainability elements, organisers can improve community engagement and gain broader support. Residents emphasized economic and socio-cultural benefits, suggesting strong connections to community pride and identity. Organisers, in contrast, expressed slightly more concern about environmental pollution, traffic and economic risks, highlighting areas where further education and awareness are needed. Identifying key sustainability elements during the planning phase can help organisers avoid common pitfalls and manage future challenges. The findings suggest that organisers should enhance sustainability programs through communication campaigns, recycling efforts, visitor monitoring, use of local products, non-polluting transport, and safety protocols. Although individually modest, these actions can collectively have significant impact when applied across events. Promoting these elements helps align event outcomes with public expectations, increasing perceived value and support. This research empowers organisers and decision-makers to strategically design events that are impactful, community-oriented, and aligned with long-term sustainability goals.

## 6. Limitations and future research

This study is context-specific, focusing on two outdoor sporting events with shared characteristics but differing in location and scope. Future research should explore events in other cities and of varying types and sizes to enhance generalizability. Introducing destination image as a variable may help standardize comparisons across cities and clarify stakeholder perceptions. Methodologically, this study did not determine the causal relationship between perceptions of impacts and organisational elements. Future studies should apply advanced techniques like regression analysis or structural equation modelling to better understand these relationships. Incorporating psycho-demographic variables such as environmental awareness or pro-environmental behaviour could reveal further influences on attitudes toward sustainability. In addition, since SET underpins this study, its limitations should be addressed, particularly the neglect of hedonic aspects such as enjoyment. Future research could therefore explore how the pleasure of attending or hosting events shapes stakeholder perceptions.

Another limitation relates to the sample because residents can typically assess only visible implementations (e.g., safety protocols, recycling programs) but may lack insight into internal organisational strategies (e.g., sustainable procurement). While event organisers often communicate their strategies publicly, limited resident awareness could reflect shortcomings in both implementation and communication. Since this study focused on host city residents, future studies should include residents of neighbouring areas to assess potential spill over effects and compare perceptions between host and non-host communities. This study also implied that the attitudes within particular stakeholder groups might differ,

which opens a room for new studies. Lastly, including the perceptions of participants and spectators in future studies, despite their limited local knowledge, could offer valuable insights, as they also influence event success. All of this would deepen the understanding of stakeholder dynamics and contribute to the broader literature on event management and sustainability.

## CRediT author statement

**Ana Chersulich Tomino:** Writing – review & editing, Writing – original draft, Data collection, Methodology, Formal analysis, Conceptualization. **Marko Perić:** Writing – review & editing, Validation, Supervision, Conceptualization.

## Declaration of generative AI in the writing process

During the preparation of this work the authors did not use generative AI and AI-assisted technologies in the writing process.

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## Conflict of interest

The authors declare no conflict of interest.

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