

# Contribution to Event Management Sustainability

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## Abstract

The need to integrate sustainability in the several sectors stems from the awareness of organizations about the impacts associated to their activities, being these impacts translated into positive or negative influences on sustainability pillars, i.e., environmental, economic and social components.

The events sector is a generator of important impacts and the events organizations have trodden a path to sustainability through measures and actions concerning not only the reduction of negative impacts on physical environment, but also the minimization of impacts at social and economic levels. The inherent activities of an event are able to maximize the potential related to positive impacts, i.e., impacts associated to the three components improvement. Thus, the organizations intention to consider and enhance sustainability is acknowledged.

The goal of the present work is to analyse the integration of sustainability throughout the stages of an event and to establish the design and application of a model that allows events performance evaluation concerning sustainability.

Initially, ISO management standards were analysed, namely, environmental management system ISO 14001:2012 and management for sustainability in events ISO 20121:2012, in order to understand which aspects are defined by voluntary adhesion systems. Posteriorly, was preceded to the study of event management theory and to the survey information on the sustainability integration in the different stages of an event, through the study of sector related impacts. The study of the measures currently adopted by the organizations was still performed, serving these as a start-up and support to the developed model.

Subsequently, the model development was based on the structure and dynamic of LiderA system, defining aspects, areas and criteria evaluated according to evaluation thresholds. The evaluation results in requirements compliance that determine which class fits the event, varying the classes from A++ (best performance) to G (worst performance), considering class E as common practice.

Finally, the application of the model to two case studies, Oracle OpenWorld and festival Leeds events allowed to determine their sustainability performance classes. In the first case the evaluation resulted in a performance class C and in the second case, a class D.

**KEY WORDS:** Events, Sustainability, Performance Evaluation, LiderA System

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## 1. Introduction

An event is defined as an happening, with beginning and end, with the subsequent realization at a given time and space. It can also be described as a result, an incident, contingency, possibility, a scheduled item or activity (Bowdin, Allen, O'Toole, Harris, & McDonnell, 2006). The concept of sustainable development is based on the fact that current actions influence the quality of life of future generations. To ensure sustainable development

it is required the awareness of people and organizations, in order to determine practices that guarantee the least negative impacts and enhance positive impacts.

Events activities can cause positive and/or negative impacts on the three pillars of sustainability (social, economic and environmental). Although the events are seen as temporary, present needs of their activities, translate into resources consumption and generation of environmental loads associated environmental impacts. The role of the economic component is relevant, because it generates cash income, not only to organizations, but also to sectors such as tourism and catering, for example. Regarding the social component, events present opportunities for promotion of cultures and traditions, as well as to inform and support social causes. Event's organizers have over time perceived the importance of integrating sustainability in the design, planning, and disassembly of an event. The way this concept is considered varies between organizations; since the importance given to the different pillars is not always the same.

It is necessary to mention that this work adopts the concept of negative impact as a loss, cost or failure and positive impact as a benefit, advantage or opportunity (Partidário & Jesus, 2003).

### 1.1. Aims and Goals

The aim of the present work focus on the study of how sustainability can be integrated in an event, proposing a model of performance evaluation, which helps organizations to realize the level of coverage of their practices and effective result of adopted measures. With the development of the performance evaluation model, it is created an opportunity for benchmarking, i.e., enabling organizations to distinguish themselves in the market, according to their practices concerning sustainable development.

The methodology of the present work consists in the establishment of an initial literature review regarding the international management standards, event management theory and sustainable events. It is studied what organizations are doing nowadays in terms of sustainability. In order to elaborate the model to evaluate event sustainability performance, it will be used guidelines of a Portuguese evaluation performance system LiderA. (Pineiro, 2013).

To perceive the application of the developed model, this will be applied to two case studies, OracleOpenWorld event and Leeds Festival event (Meet Green for Oracle, 2012), (Julie's Bicycle, 2012a).

## **2. State of Art Review**

The initial study take into account EMAS (EMAS,2011) and standards as environmental management standard ISO 14001:2012 and event sustainability management, ISO 20121:2012, in order to understand the aspects considered (ISO, 2012), (Comité Técnico ISO/TC 207, 2012).These systems are based in the PDCA cycle (plan, do, check and act) that has a focus on continual improvement. With their implementation and certification, events industry is able to organize their internal processes relating to environmental and sustainability aspects.

There is the need to classify the different types of events, and for that was structured in table 1, a methodology to assess events, based on references of event management theory (Bowdin et al., 2006); (Getz, 2007); (Van der Wagen, 2007); (Arcodia & Tanuja, 2003); (Raj & Musgrave, 2009); (Shone & Parry, 2004); (Pedro, Caetano, Christiani, & Raquilha, 2012).

**Table 1: Classification of Events.**

Classification	Specification	Description
Dimension (according to number of persons – public)	Small	Events with less or around 200 people.
	Medium	Events with approximately 200 - 1000 people.
	Big	Events with more than 1000 -10 000 people.
	Mega	Events with much more than 10 000 people.
Periodicity	Frequent	Daily, weekly.
	Occasional	Monthly frequency.
	Rare	Annual frequency
	Unique	Unique achievement.
	Hallmark or Iconic	Always performed on the same date or at the same season.
Range	Local	Local, community or municipal range.
	Regional	Country regions range.
	National	Throughout the country range.
	International	Countries in the same or another continent range.
	Global	Worldwide range.
Type of space	Open	Outdoor spaces.
	Closed	Indoor and covered spaces.
Entrance	Free	Free entrance for everyone or with invitation.
	Paid	With entrance costs, except for invitations.
Target public	General	For all public.
	Specific/Restricted	For certain type of public.
	Participative	With active public participation.
	Non-participative	Without active public participation.
Organizing Entity	Public	Organizations and public institutions.
	Private	Companies, private institutions, corporations, individuals.
	Public-Private	Both.
Scope and goals	Commercial	Sales and distribution purpose.
	Leisure	Fun, fellowship, distraction purpose.
	Promotional and/or Advertisers	Products and/or services advertising and/or promoting purpose.
	Institutional and /or Corporative	Institutional and/or corporative purpose.
	Disclosure and Opening	New product or service release purpose.
	Integration or Incentive	Causes, products or services integration or encouragement purpose.
	Social	Support a cause related to society purpose.
	Tribute	Individuals, projects, organizations honoring purpose.
	Celebration	Certain milestones celebration or commemoration purpose.
	Competition	Compete and determine a final classification purpose.
Impact	Social	With positive or negative social impact.
	Economic	With positive or negative economic impact.
	Environmental	With positive or negative environmental impact.
Event types (according to theme, content, nature, area of interest)	Cultural	Events related with cultural, learning and leisure.
	Sports	Events related to competitive or non-competitive sports.
	Personal	Events related to each person private life.
	Business and Trade	Events to promote business, products or services.
	Political and State	Political, governmental, state and monarchy events.
	Spontaneous	Any type of events without specific planning, date or content.
	Hallmark or Iconic	Events linked to a certain place tradition, presenting a direct connection with it.
	Touristic	Events related to the promotion of a certain region and culture.

The role of regulators bodies depends on the type of event. Outdoor events or in public buildings, for example, require permits and licenses different from personal events that take place in private places (apartments, houses). Another important point is that stakeholders related directly with the event, such as catering, need to

meet standards of hygiene and food safety internally to the company. There is legislation that the events industry needs to comply, such as the level of noise or rerouting of hazardous waste, or even, in the case of large infrastructure, the assembly of the event may, in accordance with the law, have to be target of an Environmental Impact Assessment (EIA). Thus, compliance with laws and regulations, taking into account the different regulatory bodies, depends on the classification and typology of events (Anje, 2011); (Rodrigues, 2008).

Event's realization implies a chain of stakeholders with direct or indirect participation. Stakeholder's contribution can have different goals according their interest. The main stakeholders of an event are organizers, workers and collaborators, public and participants and suppliers (Bowdin et al., 2006); (Getz, 2007); (Reid, 2011).

The different stages of an event, are represented in figure1 (Goldlatt, 2010); (Bowdin et al., 2006); (Almeida, 2009); (Pedro et al., 2012).

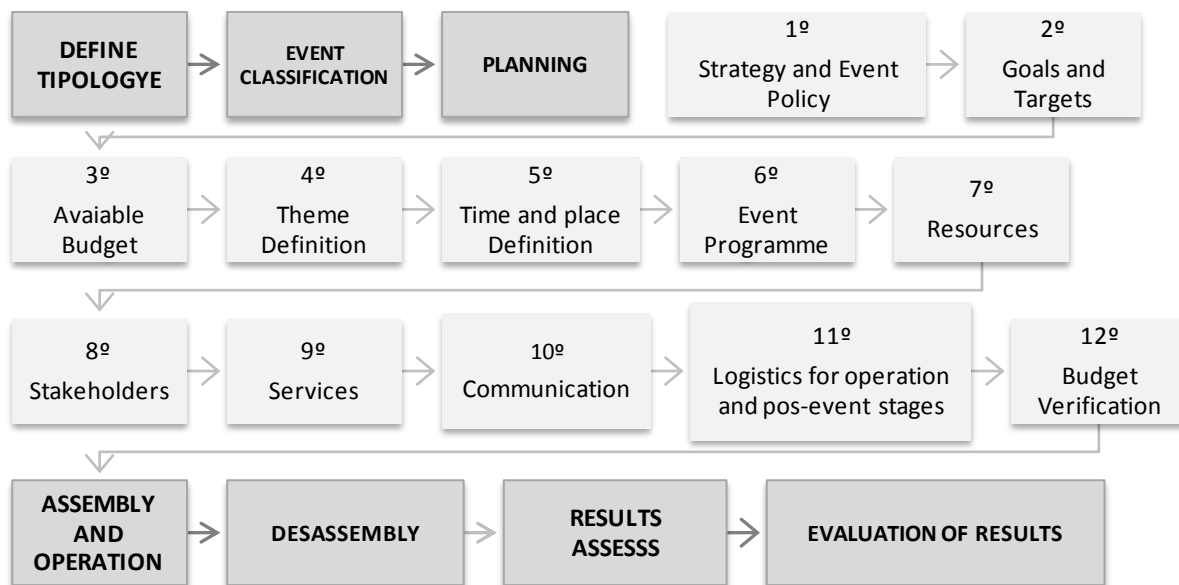


Figure 1: Stages of an Event. Adapted from (Pedro et al., 2012)

Currently, there are guidelines for sustainable events that suggest measures to be implemented, in order to improve performance of organizations in terms of sustainability. These guides have proposed checklists to help the integration of sustainability among the stages of an event, but it is difficult to assess results because the given information and help occurs mainly through provision of verification checklists (BCSD Portugal, 2012); (Defra, 2007); (Green Festival Alliance, 2013); (LOCOG, 2012a); (UNEP, ICLEI, & IAMLADP, 2009, 2012); (TOROC, 2004).

### 3. Sustainability Management at Events

Events as Rock in Rio Lisboa, Olympic and Paralympic Games London 2012 and Festival Shambala, concerns about sustainability and implement sufficient measures to minimize their negative impacts. Through the times, these events have been recognizing the need to enhance the positive impacts (Rock in Rio, 2011, 2012a, 2012b, 2013a, 2013b); (LOCOG, 2012a, 2012b, 2012c, 2012d, 2012e, 2012f; Rock in Rio, 2013b, 2011, 2012a, 2012b, 2013a); (International Olympic Committee, 2013); (Commission for a Sustainable London 2012; Julie's Bicycle, 2012b). The major measurements implemented are related to energy consumption, emissions and waste generation.

Regarding sustainability performance evaluation it is important the reference to Industry Green methodology that was created in the UK in 2007 by Julie's Bicycle organization and it is applicable to event's industry (Julie's Bicycle, 2013a). This methodology aims to recognize the commitment of organizations and the establishment

of measures concerning carbon management and sustainable development (Julie’s Bicycle, 2013b). Industry Green developed a star performance classification (one, two or three stars) that will define the behaviour and commitment of an event organization taking into account sustainable practices.

#### 4. Model Conceptualization

In order to determine the performance of each organization regarding sustainability, it will be conceptualized an assessment model. This model has the general definition of 9 aspects that decomposes in 39 areas. Each area presents evaluation criteria that account for a total of 72 criteria. This definition is based in the system LiderA, adding aspects, areas and criteria related solely to events, and adapting the basic data for this sector. It is considered areas and criteria for public management and participants, event management components, supplier management, workers, employees and volunteers. The performance evaluation is made using classes from A++ (best performance) and G (worst performance), and class E refers to the common practice, or practice that reveals the existence of concerns, but the measures defined are few and do not translate into significant results.

To conduct the event sustainability evaluation performance, it was necessary to consider weighting of areas and aspects of the model. This weighting resulted from analysis of defined areas, running up two scenarios. These scenarios were, establish equally weighted components in the areas of sustainability and establish weighting of areas, ensuring that each component have exactly the same contribution to sustainability. Second scenario will be used in the model.

The assessment of areas and principles (whether are or not covered by the organization) is designed in order to be a tool for initial analysis of the situation, contextualizing organization’s behaviour. Subsequently, in order to evaluate performance criteria related to resource consumption (water, energy) and generating loads (emissions and waste streams), it is necessary to establish reference values. The references are based on events held in the UK, including two music festivals (Festival Shambala - IG rank of three-star and Leeds Festival - IG rating of one star) and the Olympic Games in London 2012, as it was not possible to obtain data from Portugal. It was assumed that Leeds festival present a class E, in order to establish performance comparisons between Shambala festival and this. Not having data on energy, it was used the value of London Olympic Games. All baseline data were normalized per audience person that attended one day of the event, allowing comparisons. Assessment thresholds were defined according to the practices of organizations, which allowed to assign performance classes. It is important to note that the model was designed with LiderA Portuguese geographical scope and it was decided that criteria with purely national (Portuguese) context, will be classified as an E Class.

Classes of level of performance are shown in figure 2, taking into account that Class A ++, A + and A are of the most efficient performances, class E refers to common practice, and class G refers to a performance with low efficiency.

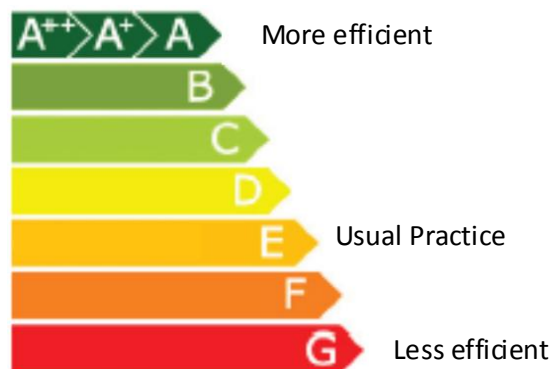


Figure 2: Classes of level of performance(Pinheiro, 2013).

Table 2 shows the improving factors and the percentage of improvement regarding the reference of E class, which can name as the class corresponding to the common practice.

**Table 2: Factors for improving and percentage of improvement regarding the reference of E class.**

Factor	Classes	% of improvement
10.00	A++	]75-90]
4.00	A+	]50-75]
2.00	A	]37.5-50]
1.60	B	]25-37.5]
1.33	C	]12.5-25]
1.14	D	]0-12.5]
1.00	E	0
0.89	F	-
0.80	G	-

Classes F and G represent a performance decrease regarding class E. The F class represents a decline compared to the reference of 12.5% and G class is a decrease, compared to the reference, of 12.5 to 25%. The improvement factor means how many times is better the performance compared to common practice, i.e., facing a class E. In order to determine event's class, criteria is weighted as follows:

- Assuming one area with one criteria classified as class E.

$$\begin{aligned} & \text{Weight of the criteria in the area} \\ &= (\text{Improvement factor regarding class E} \div \text{Maximum improvement factor}) \\ & \times \text{area weight} \end{aligned}$$

In this case the improvement factor corresponding to the class E is equal to 1.00 (no improvement) and maximum factor of improvement is 10 (corresponding to class A ++), which is the maximum possible score for the weight criteria may be in the area.

- Assuming one area with two criteria classified as class E.

$$\begin{aligned} & \text{Weight of the criteria in the area} \\ &= ((\text{improvement factor of classe E regarding class E} \\ & + \text{mprovement factor of class E regarding class E}) \\ & \div \text{Maximum improvement factor}) \times \text{area weight} \end{aligned}$$

In this case the improvement factor corresponding to the class E is equal to 1.00 (no improvement) and maximum factor of improvement is 20 (corresponding to two times the factor relating to class A + +), which is the maximum possible score on the weight that two criteria can have in the area.

- Assuming one area with two criteria classified as class A and class B.

$$\begin{aligned} & \text{Weight of the criteria in the area} \\ &= ((\text{improvement factor of classe A regarding class E} \\ & + \text{mprovement factor of class B regarding class E}) \\ & \div \text{Maximum improvement factor}) \times \text{area weight} \end{aligned}$$

In this case the improvement factor corresponding to class A facing class E is equal to 2.00 (75% improvement compared to class E), and improvement factor corresponding to class B facing class E is equal to 1.60 (37.5% improvement compared to class E) and the maximum possible improvement factor is 30 (corresponding to three times the factor relating to class A ++), which is the maximum possible weight that two criteria can have in the area. In order to classify the event follows the reasoning described, taking into account the class of the criteria, number of criteria and their weights compared to the same area in which they are held:

$$\text{Final Classification} = \sum \text{Weight of the criteria in the areas}$$

To obtain final classification, it is needed to compare the obtained value of the formula above, to the pounded classes present at table 3.

**Table 3: Pounded Classes regarding global values.**

Pounded Classes regarding global values				Factor
Maximum <	Average Value	Minimum >=	Classes	
100.00%	90.00%	65.00%	A++	10.00
65.00%	40.00%	30.00%	A+	4.00
30.00%	20.00%	18.00%	A	2.00
18.00%	16.00%	14.50%	B	1.60
14.50%	13.00%	12.20%	C	1.33
12.20%	11.40%	10.70%	D	1.14
10.70%	10.00%	9.45%	E	1.00
9.50%	8.90%	8.45%	F	0.89
8.50%	8.00%	0.00%	G	0.80

## 5. Model Application

The application of the model to two case cases, Oracle OpenWorld (USA) and Leeds festival (UK) determined a class C for the first and classing D, to the second one. Table 4 presents the assessment of the two events:

**Table 4: Evaluation of events according to the model.**

Aspect	Weight %	Area	Pillars Nº	Weight %	Criteria	Nº	Leeds Festival		Oracle	
LOCAL INTEGRATION	3.13	SOIL	1	1.04	Territorial enhancement of the event location	C1	E	0.10	E	0.10
					Implantation environmental optimization	C2	E		E	
		NATURAL ECOSYSTEMS	1	1.04	Ecological valorisation and preservation	C3	E	0.10	E	0.10
					Habitats interconnection	C4	E		E	
		LANDSCAPE AND HERITAGE	1	1.04	Landscape integration and valorisation	C5	E	0.10	D	0.10
					Natural, cultural and built heritage protection and valorisation	C6	E		A	
RESOURCES	10.83	ENERGY	2	2.71	Energy performance	C7	E	0.26	E	0.24
					Carbon intensity	C8	F		G	
		WATER	2	2.71	Drinking water consumption	C9	G	0.24	G	0.24
					Local waters management	C10	E		E	
		MATERIALS	2	2.71	Reuse, Rental and Purchasing durability based	C11	E	0.27	D	0.37
					National and local materials	C12	E		C	
					Low impact materials	C13	E		A	
					Materials related to communication and packaging	C14	E		E	
		FOOD RESOURCES AND BEVERAGES (Catering)	2	2.71	Organic food and local food production	C15	E	0.30	A	0.62
					Transport and Provisioning	C16	E		E	
Labels and packages	C17				C	E				
ENVIRONMENTAL LOADS	5.21	EFFLUENTS	1	1.04	Effluents control	C18	F	0.01	E	0.01
					Wastewater reuse flow rate	C19	E		E	
		ATMOSPHERIC EMISSIONS	1	1.04	Atmospheric emissions flow rate	C20	F	0.10	F	0.10
		WASTES	1	1.04	Waste production	C21	F	0.11	F	0.13
					Hazardous waste management	C22	E		E	
					Waste management and valorisation	C23	C		A	
NOISE	1	1.04	Noise sources	C24	E	0.10	E	0.10		
OTHER LOADS	1	1.04	Other loads	C25	E	0.10	E	0.10		
ENVIRONMENTAL COMFORT	7.29	AIR QUALITY	2	2.43	Air quality levels	C26	E	0.24	E	0.24
		THERMAL COMFORT	2	2.43	Thermal Comfort	C27	E	0.24	E	0.24
		LIGHTING AND ACOUSTIC	2	2.43	Lighting levels	C28	E	0.24	E	0.24
					Noise comfort	C29	E			

Aspect	Weight %	Area	Pillars Nº	Weight %	Criteria	Nº	Leeds Festival	Oracle		
SUPPLIERS, COLLABORATORS, WORKERS AND VOLUNTEERS MANAGEMENT	9.58	WORKERS AND VOLUNTEERS NUMBER AND FORMATION	3	4.10	Number of workers, collaborators and volunteers	C30	E	0.61	E	0.41
					Workers, collaborators and volunteers formation	C31	A		E	
		WORKERS, COLLABORATORS AND VOLUNTEERS PROTECTION	1	1.39	Safety, Security and Health at work	C32	E	0.14	E	0.14
		SUPPLIERS SELECTION AND AWARENESS	3	4.10	Suppliers selection criteria	C33	A	0.82	A	0.82
Suppliers awareness measures	C34				A	A				
PUBLIC AND PARTICIPANTS MANAGEMENT	11.74	PUBLIC AWARENESS	3	4.10	Public access to information and to the event sustainability policy	C35	A	1.02	B	0.66
					Awareness actions and promotion of Sustainability and Healthy Lifestyles	C36	E		B	
		ADEQUATE SPACES AND SERVICES TO THE NUMBER OF PEOPLE	2	2.43	Space management	C37	E	0.24	E	0.24
					Services Management	C38	E		E	
		PUBLIC EXPECTATIONS	2	2.43	Experience related to the event type	C39	E	0.24	E	0.24
					Space for suggestion, compliments and complaints	C40	E		E	
PUBLIC MANAGEMENT	1	1.39	Measures according to the type of public	C41	E	0.14	E	0.14		
PUBLIC AND PARTICIPANTS PROTECTION	1	1.39	Safety, Security and Health	C42	E	0.14	E	0.14		
OTHER COMPONENTS MANAGEMENT	26.25	Transport	3	4.10	People and material transportation necessary to the event	C43	C	0.56	A	0.82
		Accommodation	2	2.71	Accommodation of internal persons to the event	C44	E	0.27	A	0.54
		Tourism	1	1.67	Tourism relation	C45	E	0.17	E	0.17
		Partnerships	2	3.06	Partnerships establishment providing win-win relations	C46	E	0.31	B	0.49
		Legislation	3	4.10	Compliance	C47	E	0.41	E	0.41
		Organisms	3	4.10	Organisms relations	C48	G	0.33	C	0.55
		Risk	2	2.43	Risk management	C49	C	0.32	C	0.32
Sponsors	3	4.10	Sponsors selection and awareness	C50	E	0.41	E	0.41		
SOCIO-ECONOMIC EXPERIENCE	17.78	MOBILITY	3	4.10	Access for all	C51	E	0.44	E	0.44
					Low impact mobility	C52	D		D	
					Efficient accesses	C53	D		D	
					Public Transports	C54	E		E	
		ECONOMIC DIVERSITY	2	3.06	Flexibility – uses adaptability	C55	E	0.31	E	0.37
					Value creation and economic dynamic	C56	E		A	
					Local work	C57	E		E	
					Consumption and Inflation	C58	E		E	
					Suborn and corruption	C59	E		E	
		SOCIAL INTERACTION AND INTEGRATION AND AMENITIES	1	1.39	Local amenities	C60	E	0.14	E	0.16
					Community interaction	C61	E		E	
					Work conditions and social protection	C62	E		E	
					Vulnerable groups discrimination	C63	E		E	
Local community	C64				E	A				
Social responsibility	C65	E	E							
STAKEHOLDERS RELATIONS	3	4.10	Participation	C66	C	0.55	C	0.55		
CONTROL	2	2.43	Natural risks control - (Safety)	C67	E	0.24	E	0.24		
			Human threats control - (Security)	C68	E		E			
LIFE CYCLE COSTS	2	2.71	Life cycle costs	C69	E	0.27	D	0.31		
SUSTAINABLE USE	8.19	ENVIRONMENTAL MANAGEMENT	3	4.10	Environmental use conditions	C70	A	0.82	A	0.82
					Maintenance and environmental management system	C71	A		A	
INOVAION	3	4.10	Innovations	C72	E	0.41	E	0.41		
<b>TOTAL</b>	<b>100</b>	-	76	100	-	-	-	-	-	
<b>FINAL CLASS</b>							<b>D</b>	<b>11.92</b>	<b>C</b>	<b>12.76</b>



## **6. Results Discussion**

The application of the model to the cases Oracle OpenWorld (USA) and Leeds festival (UK) resulted in sustainability classes C and D for the events. In both cases it was found higher values in comparison with reference value for criteria related to energy performance, water consumption, wastewater, air emissions and waste production. This result may be due to differences in events typologies, compliance with regulations and requirements or to people's behaviour.

Regarding Oracle OpenWorld the strengths of this event are connected to the promotion of cultural activities; focusing on low-impact materials; criteria for selection of local and organic food; waste management and recovery; selection criteria and awareness of suppliers; low impact transport; choice of hotel units with low impact; measures against the decrease of disruptions due to event assigned to the host community; conditions and environmental management activities based on environmental management systems (particularly are followed the guidelines of the ISO 20121:2012 although the event is not yet certified).

The strengths of Leeds Festival focus on investment in training of workers, employees and volunteers; establishing selection criteria and awareness for sustainable suppliers;; providing information to the public and ultimately the fulfilment of conditions for environmental management and maintenance management systems, which means setting goals and targets, as well as measures and actions to improve performance.

## **7. Conclusion and Recommendations**

The designed model allows the evaluation of the performance of all kinds of events, however should stress the importance of getting references on the country or place where the event is located, to allow a more accurate assessment. It is a fact that according to each country, there are different consumption habits and different practices for sustainability. The devices are also different depending on the country, demanding greater or less consumption of resources and producing more or fewer environmental burdens. Considering people's behaviour and the type of audience of an event, there are significant differences at this level, even within the same geographical area.

Through the analysis of case studies it is possible to conclude that the main focus of the organizations is on the environmental component of sustainability. The opportunity to enhance positive impacts, particularly in terms of social responsibility practices and practices that foster economic dynamism is very important to be considered by organizations. The developed model also allow to evaluate and compare performances of different events, creating benchmarking while driving organizations to increasingly integrate sustainability into decision-making.

Whereas recommendations relating to future, it is noted that, in the structuring of references to the model, it is important to consider the geographic scope, which produces more accuracy to the assessment. The definition references should be a collection of values of resource consumption and generation of charges relating exclusively to the area of events. Another factor is the possible data normalization specific to each type of event, since they have different needs and structures. This item would be interesting because it create benchmark niches between various events with the same type. Transparency, regarding the results of events is a very relevant point, as well as the performance rating, because provides information to the public that allows to assess the position of the event regarding sustainability.

It is a fact that this sector presents numerous opportunities to integrate sustainability into their practices.

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