Journal of Global Sport Management

ISSN: 2470-4067 (Print) 2470-4075 (Online) Journal homepage: https://www.tandfonline.com/loi/rgsm20

Beyond Legacy: Assessing Olympic Games Performance

Jean-Loup Chappelet

JOURNAL OF GLOBAL SPORT MANAGEMENT
https://doi.org/10.1080/24704067.2018.1537681

Beyond Legacy: Assessing Olympic Games Performance

Jean-Loup Chappelet

Swiss Graduate School of Public Administration (IDHEAP), University of Lausanne, Chavannes-Lausanne, Switzerland

ABSTRACT

This conceptual paper proposes a new framework for evaluating the two central facets of Olympic Games performance: their delivery and their legacy. This framework, which I call the "Olympic diamond", is based on classic concepts of managerial performance and public policy evaluation, developed over many years by managers and political scientists to measure public action. Indeed, the Olympic Games, which are now attributed seven years before they take place, have become a sort of public policy/programme or, more accurately, a partnership between the public authorities and private actors within a given territory (city, region, country). This partnership requires public bodies to work closely with private non-profit organisations and for-profit companies over a period of 12 years or more to implement a vast series of measures. Section 1 shows how the Games have evolved from a purely private affair to a true public policy, and discusses what is meant by Games performance. Section 2 reviews recent attempts to measure or evaluate this performance. The final section presents an approach to evaluating Olympic performance – the Olympic diamond – and describes its four vertices and five evaluation criteria, drawing on the 2012 London Olympics to illustrate how this framework can be applied. The conclusion discusses the Olympic diamond's potential for evaluating and comparing other editions of the Games or other Olympics-related projects and facilities.

超越遗产:评估奥运会表现

这篇概念性论文提出了一个新的框架来评估奥运会两个核心方面的表现:它们的传递和它们的遗产。我把这个框架称为"奥运钻石",它基于管理绩效和公共政策评估的经典概念,是管理者和政治学家多年来为衡量公共行动而发展起来的。事实上,奥运会现在被认为是在七年前举行的,它已经成为一种公共政策/方案,或者更准确地说,成为一个特定领土(城市、地区、国家)内公共当局和私人行动者之间的伙伴关系。这种伙伴关系要求公共机构在12年或更长时间内与私营非盈利组织和营利性公司密切合作,以实施一系列广泛的措施。第一章节展示了奥运会如何从一个纯粹的私人事务演变成一个真正的公共政策,并讨论了什么是奥运会的表现。第二章节回顾了最近衡量或评估这种性能的尝试。最后一章节介绍了一种评估奥林匹克表现的方法——奥林匹克钻石——并描述了它的四个顶点和五个评价标准,并以2012年伦敦奥运会为例来

ARTICLE HISTORY
Received 11 March 2018
Revised 16 July 2018
Accepted 8 August 2018

KEYWORDS
Olympic delivery; legacy; heritage; outcomes; effectiveness

关键词:
奥运交付; 遗产; 传统; 结果; 有效性

CONTACT Jean-Loup Chappelet Jean-Loup.Chappelet@idheap.unil.ch Swiss Graduate School of Public Administration (IDHEAP), University of Lausanne, 21 Route de la Maladiere, Chavannes-Lausanne, CH-1022, Switzerland

说明如何应用这个框架。结论讨论了奥林匹克钻石在评价和比较其他版本的奥运会或其他与奥运会有关的项目和设施方面的潜力。

1. Introduction

Juan Antonio Samaranch, president of the International Olympic Committee (IOC) from 1980 to 2001, always ensured his speeches at Olympic Games closing ceremonies included a laudatory sound bite the media could pick up on. This enabled him to put a positive spin on every edition of an event whose organisation the IOC has overseen since 1894 and which is virtually its only source of revenue. Samaranch even went as far as describing Sydney 2000, his final Olympics as IOC president, as the "best Games ever". His successors have continued this tradition, albeit using more subtle turns of phrase. Jacques Rogge, for example, chose to paraphrase Britain's national anthem, declaring the London 2012 Olympics to have been "happy and glorious", whereas Thomas Bach referred to Rio's nickname when he praised the 2016 Olympics as "marvellous Games in the marvellous city". Later, acknowledging the fact that Rio 2016 had been staged successfully in a particularly difficult context, the IOC said the event could be described as the "most perfect imperfect Games" (Grohmann, 2016).

Nevertheless, it is unanimously agreed that while organising a successful Games is essential, it is not enough to vindicate the decision to host the event. In other words, 17 days (current duration of both the Summer and Winter Olympics) of sporting competitions do not justify the massive financial and human investment involved in staging the Olympics; for a Games to be deemed a success, it must also leave behind a positive legacy. This imperative has been recognised by the Olympic Charter since 2004, with Rule 2.14 stipulating "to promote a positive legacy from the Olympic Games to the host cities and host countries" as one of the IOC's fundamental missions. Who can define what is "a positive legacy" is unclear as we know this definition can vary from stakeholders to stakeholders (mayor, city official, inhabitants, businesses, etc.).

The importance of Olympic legacies is reflected in the huge number of research papers and academic conferences the subject has generated since the turn of the century (e.g., de Moragas, Kennett, and Puig, 2003). In 2014, the IOC itself set up a Sustainability and Legacy (formerly Sport and Environment) Commission to study the issue and put forward a strategy. A recent literature review (Scheu & Preuss, 2017) uncovered more than 863 academic papers relating to Olympic legacies, 204 of which were analysed in detail. However, very few of these papers describes a method for measuring and evaluating Olympic legacies.

The present conceptual paper proposes a framework for evaluating the two central facets of Olympic Games performance: their delivery and their legacy. (The neutral term "performance" is preferable to more emotive terms such as "success", "impact", "failure" or "benefits" which is defined differently by different stakeholders.) This framework, which I call the "Olympic diamond", is based on classic concepts of

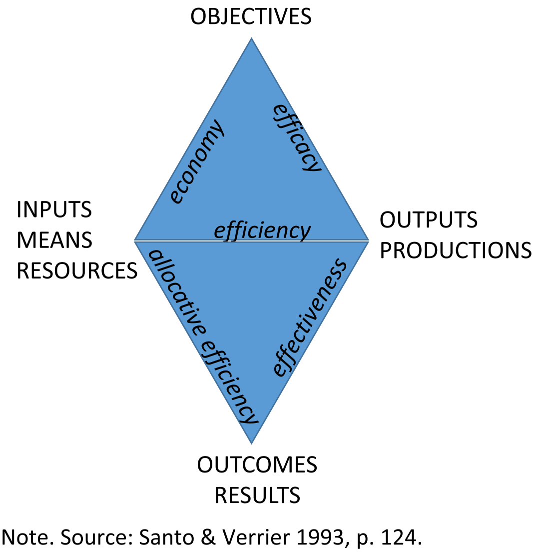

Figure 1. The public action framework.
Source: Adapted and translated from Santo & Verrier 1993, p. 124.

managerial performance and public policy evaluation, developed over many years by managers and political scientists to measure public action. Indeed, the Olympic Games, which are now. Attributed seven years before they take place, have become a sort of public policy/programme or, more accurately, a partnership between the public authorities and private actors within a given territory (city, region, country). This partnership requires public bodies (municipal, regional and national authorities, public agencies, etc.) to work closely with private non-profit organisations (IOC, local organising committee, national Olympic committee, etc.) and for-profit companies (sponsors, suppliers, hotel owners, developers, etc.) over a period of 12 years or more to implement a vast series of measures.

Section 1 shows how the Games have evolved from a purely private affair to a true public policy requiring a specific form of governance, and discusses what is meant by Games performance. Section 2 reviews recent attempts to measure or evaluate this performance. The final section presents a new approach to evaluating performance - the Olympic diamond - and describes its four vertices and five edges (see Figure 1), drawing on the 2012 London Olympics to illustrate how this framework can be applied. The conclusion discusses the Olympic diamond's potential for evaluating and comparing other editions of the Games, most notably the Winter Youth Olympic Games, inaugurated in 2012, or other Olympics-related projects and facilities.

2. Increasing Public Sector Involvement in Delivering the Olympic Games

Until the 1960s for the Summer Olympics and the 1980s for the Winter Olympics, the Games tended to be organised by private, although not-for-profit, bodies in the shape of local Organising Committees of the Olympic Games (OCOG), which coordinated all the necessary operations and construction work. The period following World War II, especially the Cold War, saw significant growth in the size and importance of the Games, first for the Summer Olympics and then, after 1994, when the Olympic calendar was changed so the Winter Games are held two years after the Summer Games rather than in the same year, for the Winter Olympics. In fact, the stature of the Olympics was such that the Italian (Rome 1960), Japanese (Tokyo 1964, Sapporo 1972), and German (Munich 1972) governments saw hosting them as a way of marking their country's return to the "concert of nations". Similarly, the Mexico 1968, Sarajevo 1984 and Seoul 1988 Olympics were seen by their host nations as a sign they had been admitted to this "concert", on a par with the countries of the West, which had monopolised the Games until then.

Municipal and regional governments also became increasingly involved in organising the Games. For example, Montreal's mayor, Jean Drapeau, obtained the 1976 Olympics as a way of building on the success of the 1967 World's Fair (from his point of view) and cementing the city's position as a global metropolis. When Barcelona was awarded the 1992 Games, the OCOG was presided by the city's mayor in person, backed by strong support from his region, which saw the Games as a way of expressing Catalonia's autonomy from Madrid. Similarly, Grenoble's municipal councillors were heavily involved, alongside the French government, in organising the 1968 Winter Olympics. Such local and regional government involvement has been the norm for every edition of the Summer Games since the 1960s (and sometimes before that, e.g., Berlin 1936).

However, by the late 1970s the Games had lost much of their attractiveness for municipal, regional and national politicians, due to the huge deficit posted by Montreal 1976 (financed by Quebec's provincial government), repeated Olympic boycotts (1972, 1976 and 1980) and Denver's withdrawal from the 1976 Winter Games (replaced by Innsbruck, which had hosted the 1964 Games). As a result, the IOC received just one bid to host the 1980 Winter Olympics (Lake Placid) and 1984 Summer Olympics (Los Angeles) and only two bids for the 1984 Winter Olympics and 1988 Summer Olympics. Enthusiasm for hosting the Olympics was revived by the success of Los Angeles 1984 and Calgary 1988, which gave the idea that a "private" OCOG (as in these two Olympics) could deliver the Games without strong public financial support and even make a profit (on the operational budget, since there was no investment budget). As a result, no fewer than eleven cities bid to host the 2004 Summer Olympics, five of which were presented to the IOC for the final vote. However, eagerness to stage the Olympics has faded once again, with very few candidates coming forward to host the 2022 (awarded to Beijing), 2024 (Paris) and 2028 (Los Angeles) Games (Chappelet, 2017).

The last edition of the Games to try and severely restrict public sector involvement was Atlanta 1996, which nevertheless received substantial support from the American government, as shown by the report issued by the United States' General Accounting Office (GAO, 2001). What is more, a promise by the bid committee meant that Atlanta's OCOG had to set up a para-public agency – the Metropolitan Atlanta Olympic Games Authority (MAOGA) – to provide the deficit guarantee required by the IOC and to coordinate the different public and private stakeholders. In this respect, the State of Georgia, of which Atlanta is the capital, provided a large subsidy. Even with this public support, Atlanta 1996 had great difficulty balancing its budget and the transportation and security problems that arose during the Games severely compromised the event's delivery. It remains to be seen how the recently-formed OCOG for Los Angeles 2028 will manage to stage these Games, as, even though both the city and the State of California have promised US$250 million deficit guarantees, it will not receive any financial guarantees from the federal government (although there will probably be some sort of federal contribution, mostly in kind, as in 1984).

Aware of how difficult it is to deliver the Games without a close partnership between the public authorities and private organisations, New South Wales' provincial government set up a series of governmental agencies for the Sydney 2000 Olympics. Coordinated by a Ministry for the Olympics, each agency was responsible for a specific task: Sydney Organizing Committee for the Olympic Games (SOCOG) – operations; Olympic Coordination Authority (OCA) – construction work; Olympic Roads and Transport Authority (ORTA) – transport services; and Olympic Security Command Center (OSCC) – security during the Games and the preparation phase. These agencies worked closely with Australia's federal government. The only non-public Australian organisation intimately involved in delivering the 2000 Olympics was the Australian Olympic Committee, which had given up its prerogatives on organising the event in exchange for a share of the profits of AU$100 million (Brabazon, 1999).

Nearly all Olympic Games summer and winter hosts since 2000 have adopted a similar public-private model, which is why it is possible to say that delivery of the Games is now a sort of public-private partnership, with the size of the public and private components depending on the traditions of the host country and the autonomy of its national Olympic committee (Beijing 2008 and Sochi 2014 were predominantly public; Atlanta 1996 and Salt Lake City 2002 were predominantly private). Moreover, since Sydney 2000, all summer and winter host countries have also adopted specific "Olympic laws".

Due to this indispensable involvement of the public authorities, and the increasingly blurred boundary between public and private expenditure, it has become necessary to monitor Olympic budgets and spending, a task that is usually carried out by the government bodies responsible for evaluating public expenditure. Consequently, detailed analyses of public contributions to staging several editions of the Games are available for scrutiny. This is the case for Los Angeles 1984, Atlanta 1996 and Salt Lake City 2002 (by the [US] Government Accountability Office, formerly known as the General Accounting Office), Vancouver 2010 (by Heritage Canada) and London 2012 (by the UK's National Audit Office – NAO). The finances of other recent Olympic projects (Sochi 2014, Rio 2016) are less transparent or reliable. In France, an Olympic law has been enacted to entrust the country's audit office (Cour des Comptes) to auditing the finances relating to the Paris 2024 Olympics. A research programme should be established to assess these Games heritage thanks to indicators of sustainable development.

It is the duty of such public audit bodies to evaluate the performance of Olympic Games held within their country. Hence, the NAO published the following verdict after London 2012: "by any reasonable measure the Games were a success and the big picture is that they delivered value for money" (NAO 2012: 8). But what do "success" and "value for money" mean? Was the event a "success" and "value for money" for its financial backers? For the public? For sponsors? For the IOC? For other stakeholders? Best value for money is often defined as the most advantageous combination of cost, quality and sustainability to meet customer requirements. But who is the Games "customer" and who defines what is the most advantageous "combination". As the literature shows, there are winners and losers with every edition of the Games (Preuss 2016), and any conclusions will depend on which stakeholder's point of view is being considered (Parent & Chappelet, 2016). In addition, other concepts, such as "impacts", "benefits", "sustainability" and "legacy" are used regularly, especially to support or oppose bids or organising (IOC, 2017).

These legacies can be categorised in a variety of ways (e.g., Cashman, 2003; Chappelet, 2012; Preuss, 2015), reflecting the concept's multiple dimensions. What is more, legacy is just one of two key aspects of Olympic performance, so it is essential not to forget the delivery of the event itself. An examination of previous attempts to measure Olympic Games performance, presented in the following section, showed the need for another approach to this issue, as provided by the Olympic diamond, described in the final section.

3. Ways of Measuring Olympic Games Performance

The first attempts to measure Olympic Games performance focused entirely on the economic dimension. Since the 1980s, consultants and academics have conducted numerous economic impact studies, most of which were *ex-ante* studies commissioned by the Games' proponents and quickly done by consulting firms, often to justify a bid. Because they were carried out before the Games, some economic data needed for an accurate analysis, such as OCOG and spectator expenditure, were unknown and had to be estimated. *Ex-post* studies (on real data) are rare because few organisations, whether supporters or opponents, are prepared to finance them, especially after the event. Most *ex-ante* (and *ex-post*) studies have been marred by important biases, not to mention numerous methodological errors (Baade, 2006: Table 16.1: 181).

Economic impact studies generally give rise to two headline figures: X million dollars of added value and Y thousand jobs created by hosting the Games. These figures concern essentially the bid and preparation phases to the Games and the Olympic month (a period of around 8–10 years), which is when the vast majority of Olympic expenditure takes place. In fact, as long as there are few leaks, that is, expenditure outside the territory, the massive sums spent on preparing and staging the Games automatically provide a boost to the host territory's economy, according to the economic base theory, because most of the money involved comes from outside the territory and would not have been spent in it if the Games had not taken place. Nevertheless, in addition to the fact that these large X and Y numbers are correlated, the vision provided by such analyses is solely economic and generally aimed at justifying the expenditure the Olympics involve and winning over the host territory's population. In summary, these economic impact studies are of little use to assess the Olympic Games performance.

Moreover, the Olympics are about much more than economics; they also have environmental and social impacts. For some, the only meaningful way of assessing a sport event's success is to evaluate all three components of the triple bottom line, that is, its economic, social and environmental sustainability (Chernushenko & van der Kamp, 2001). Environmental impact studies have been carried out for several Olympic Games, starting with the 1980 Winter Olympics at Lake Placid (Chappelet, 2008), and some OCOGs have used these studies to obtain ISO 14000 or EMAS environmental management certification (e.g., Turin, 2006). Inspired by the development of corporate social responsibility within the business world, OCOGs have also begun carrying out social impact studies, and OCOGs for future editions of the Games have been strongly advised to conduct both environmental and social impact studies (Barget & Gouguet, 2010). The UN-supported ESG (Environmental, Social and Governance) indicators, which have been applied to many types of investment, could provide a means for evaluating the sustainability of an Olympic investment.

The three dimensions (economic, social, environmental) underlying the notion of sustainable development are vital, as they can influence decisions on whether or not to bid for the Games, if those decisions have not already been made. They are also essential to measuring the performance of an edition of the Games. One way of combining them is to conduct a global cost-benefit analysis comparing all tangible and intangible costs with all tangible and intangible benefits without forgetting externalities. The first part of such an analysis – determining and monetising costs, including intangible costs – is relatively easy, via approaches such as "welfare economics". However, it is much harder to determine and monetise benefits. How much is a good image worth? What is the value of a positive article in a major newspaper? What are the benefits of greater participation in sport? Consequently, the conclusions of a cost-benefit analysis are highly dependent on how benefits are monetised, which makes the value of such studies contestable. These assessments of the net total benefits (or costs) of the Games must therefore be interpreted with caution. In addition, they are rarely conducted *ex post*, i.e. based on actual data, as interest in this type of study drops considerably after the Games. Moreover, there is very little cost-benefit analysis of the Games and even less in the way of more subtle analysis according to the CGE model (Computable General Equilibrium) which has been highly influential for some years in the evaluation of public policy projects (an exception is Giesecke & Madden, 2011, an assessment of the Sydney 2000 Games according to the CGE model).

Another important issue, but one that has rarely been considered in evaluations of Olympic Games, is the duration of any impact. Clearly, different durations have to be considered in line with the different stages in organising the Games; but how long should these durations be? Answering this question is relatively straightforward for the preparation and delivery stages, but much more difficult for the post-Games period. Over what period an Olympic legacy should be evaluated? A year? Four years? Ten years? Even longer? Vancouver 2010 emphasised "legacies now" during the preparation phase.

Other difficulties can also complicate Olympic impact studies. For example, how should they take into account non-Olympic factors over the period under consideration, such as variations in exchange rates, the provision of special offers for tourists and the availability of cheap travel options? What expenditure should be considered Olympic expenditure and what should not? Should investment in transport infrastructure prior to the Games be categorised as Olympic expenditure, even though these facilities will be in use for many years after the event? How large an area should be considered when measuring impacts: the host city, the metropolitan area, the region (province, canton, state), or the entire country? The answer to this question will determine, for example, whether an item of Olympic expenditure is considered to come from outside the host territory (and therefore have an additional impact) or from inside the host territory (and therefore should have no additional impact). The choices made when answering these questions directly affect the impact study's conclusions. In addition, a lot of essential data are not available on a suitable territorial scale due to a lack of adequate statistics.

By the beginning of the 2000s, the IOC had realised that irrefutable data in a wide variety of domains was needed in order to evaluate Games performance. Because the necessary data is often non-existent or difficult to obtain after the event, as the IOC asked, they have to be collected during the organisation phase in order to facilitate later studies. In fact, the official reports produced by OCOGs after the Games used to include a lot of basic data, but these reports have gradually become communication tools rather than records of factual information. For example, Salt Lake City 2002's official post-Games report did not provide any budget information at all (SLOOC, 2002).

The IOC's response to this problem of data availability and, in some cases, transparency, which had made it impossible to carry out any serious comparison of the Games, came in 2000, when it launched the Olympic Games Global Impact (OGGI) project (Dubi, Hug, and van Griethuysent al., 2003). The idea of OGGI was to document about 150 indicators in the economic, social and environmental spheres that could be compared from Games to Games.

Under the OGGI, OCOGs for Summer and Winter Olympics held between 2004 and 2012 were obliged to form a partnership with a host-city university, which would collect data on a range of Games indicators throughout the organisation period. The OGGI's 126 indicators, listed by Malfas, Theodoraki, and Houlihan, (2004) along with an initial review of the project, covered all three spheres of sustainable development (economic, social, and environmental). They had to be measured at four stages during the project, giving rise to four reports, established at the start of the bidding process (Baseline report), a year before the Games, during the Games and two years after the Games (Post-Games report). OGGI reports were part of the IOC's desire to better manage knowledge of the Games, a vast enterprise launched on the basis of the Sydney 2000 OCOG's experiences. As a result, the OCOGs for Beijing 2008, Vancouver 2010 and London 2012 signed research agreements with, respectively, Renmin University in Beijing, the University of British Columbia in Vancouver and the University of East London. The results of this research were published (Feng 2011; UBC 2013; ESCR 2015).

Vancouver 2010 is the only edition of the Games to have implemented the OGGI in full, with all four required reports being published online. In addition, the lead researcher of Vancouver's project produced a very constructive review of the research (VanWynsberghe, 2015). OCOGs for editions of the Olympics before 2010 were too far advanced in their preparations or did not provide the resources needed to complete all four studies required by the OGGI (e.g., the OCOG for Beijing 2008 focused on volunteers, Feng, 2011). Other OCOGs complained there were too many indicators to measure and were allowed to produce just two reports (before and after the Games). During this time, the project was renamed the Olympic Games Impact (OGI) project, as the term "global" had frequently been interpreted as "international", rather than as covering all the spheres of sustainable development, as originally intended.

According to a University of British Columbia (UBC) press release, issued in October 2013 in conjunction with publication of the OGI post-Games report: "The 2010 Winter Olympics presented an unparalleled opportunity to gain federal and provincial support for infrastructure projects like the Canada Line [a rapid transit line from the airport to the city], says UBC research. […] Vancouver and Whistler residents enjoyed the biggest return after hosting the 2010 Winter Games but Canadians across the country also benefitted from a boost in pride and nationalism (UBC, 2013)." VanWynsberghe called this countrywide boost to pride and nationalism the "red mitten effect", after a merchandising product bought and worn by many spectators and residents. VanWynsberghe's (2015: 14) analysis of the OGI's methodology led him to suggest that it "has the potential to become a summative evaluation tool that increases knowledge concerning attribution." He continued, "Confidence in supporting a revised OGI evaluation tool is partially derived from the 2012 pre-Games OGI report. […] The OGI researchers for London 2012 borrowed from and endorsed the 2010 model in rating their indicators according to relevance, impact and confidence in conclusion. In addition, the product of combining these scores produced a sustainability standard for the current edition, which can, in turn, be compared over editions."

Despite this positive assessment, the London Organising Committee of the Olympic and Paralympic Games (LOCOG) decided to base its analyses on the indicators drawn up by the Global Reporting Initiative (GRI), a foundation set up in 1997 that produced a battery of indicators for measuring and reporting the sustainability, first of companies and later of all types of organisation (www.globalreporting.org). LOCOG, together with other organisations, even triggered a "sector supplement" for sport events, that is, an additional list of indicators specific to such events. LOCOG also contributed to the creation of the ISO 20121 standard (Pelham, 2011), aimed at helping sports events become sustainable, and was one of the first organising committees to be certified according to this new standard (named after the London Games year).

Nevertheless, in order to comply with an obligation imposed on LOCOG by the IOC in the Host City Contract, the University of East London was commissioned to publish a report after the Games, which concluded with *themed vignettes* by a variety of authors summarizing London 2012's legacy performance with respect to fourteen dimensions, such as employment, culture, urban regeneration, health, sport and volunteers (ESRC, 2015: 151).

From the Rio 2016 Olympics onwards, the IOC decided to stop requiring OCOGs to set up an OGI project. Since it was created in 2014, the IOC's Sustainability and Legacy Commission has been working on a new framework for analysing these dimensions, most notably in order to evaluate the sustainability and legacy of Games.

London 2012 has undoubtedly been the most closely scrutinised Olympic Games to date, with innumerable reports commissioned since the bid stage, in addition to the dozens of books and hundreds of papers written by researchers from the UK and elsewhere since the Games were awarded in 2005. New publications about London 2012 continue to appear to this day, several years after the Games came to a close. A request by the British academic publisher Routledge asking the editors of around 40 of its academic journals to produce special issues on London 2012 resulted in the publication of almost 200 articles about the Olympics in fields as varied as music, engineering, ecology and politics. A "Handbook of the London 2012 Olympic and Paralympic Games" was to be published (Girginov, 2014: 5) and made an official LOCOG product (bearing the LOCOG logo, sold in LOCOG stores, etc.). It would have provided a self-selected dozen British academics with special access to the preparations for the Games This handbook was to supplement the official but more commemorative report LOCOG was contractually obliged to produce after the Games. However, internal resistance within LOCOG about the cost and time required meant it never saw the light of day, and it was replaced by an independent, two-volume (before and after the Games) publication on the same subject. Again, the publisher was Routledge, but the content of the books, which were subtitled "Making the Games" and "Celebrating the Games", was entirely the responsibility of the authors and the editor (Girginov, 2014: 5).

In addition to LOCOG's actions, the British government, which provided much of the finance for London 2012 (see budget below), set precise objectives for the Olympics in a document published by the ministry responsible for sport, the then Department of Culture, Media and Sport (DCMS). These so-called "legacy promises" were to:

1. Make the UK a world-leading sporting nation in (a) sport participation, (b) elite sport and (c) sporting infrastructure
2. Transform the heart of East London (where the Olympic Park was to be built)
3. Inspire a generation of young people to take part in volunteering, cultural and physical activity
4. Make the Olympic Park a blueprint for sustainable living
5. Demonstrate that the UK is a creative, inclusive and welcoming place to live in, visit and for business (adapted from DCMS, 2008: 58).

In 2009, a sixth legacy promises was added: "Bring about lasting change to the life experiences of disabled people." In 2010, a centre-right coalition government took over from the Labour government that had been in power when the Games were awarded to London. The new government slightly reformulated these objectives, which LOCOG encapsulated in a succinct slogan, "Inspire a generation", that it used during the Games.

But the DCMS wanted to do more than draw up objectives; given the huge operational expenditure, especially for investments relating to the Games (in 2012, the NAO (2012: 9) estimated the total cost of the Games to be around GB£11.3 billion, but also said the final figure would be higher and known only later), it also wanted to evaluate whether these objectives had been met. It did this by commissioning a consortium led by Grant Thornton (and including Loughborough University and the consultancy firms ECORYS and Oxford Economics) to carry out a "meta-evaluation" of the Games' legacy. This meta-evaluation assessed the outcomes of London 2012 by combining evaluations already carried out by others, that is, by conducting a "statistical aggregation of evidence of effects in concrete policy settings" and a "qualitative aggregation of qualitative and/or quantitative evidence of effects claimed". These aggregations were complemented by an appraisal of evaluations made by others for the Games, as a sort of quality control of the studies already carried out (Henry, 2016: 22–23).

Although such meta-evaluation methods are commonly used in fields such as medicine and psychology, this was the first time they had been applied to determine the impact of the Olympic Games. In fact, they are the most ground-breaking studies of Olympic Games performance carried out to date. No subsequent edition of the Games has copied London's approach, which has roots in the Evidence Based Management movement (Rand, 2007), so the five reports resulting from this meta-evaluation are particularly precious and deserve detailed study (especially the last one, GT, 2013).

The meta-evaluation of London 2012 revealed certain difficulties that affect all evaluations of Games performance. First, the data collected must be both valid and reliable in order to avoid producing biased, or even contradictory, results. London 2012's Promise 1a (Make the UK a world-leading nation in sport participation) clearly illustrates this issue. What counts as participation in sport (validity of the data) and who should do the counting (reliability of the data)? In other words, it is not enough to collect data; their value must also be assessed.

Second, the meta-evaluation highlighted the problem of "additionality", that is, the need to determine the net effect of the Games by assessing the outcomes of the Olympic project *per se*, minus the outcomes that would have occurred even if the Games had not been held. Most evaluations of the 2012 London Olympics have not taken this issue into account (Henry, 2016: 26). One exception to this rule was PricewaterhouseCoopers' assessment of the impact of the Free Swimming programme, set up to develop this sport in the UK among the under-16s and over-60s. Their report led the British government to stop financing the programme because existing swimmers were abandoning lessons outside the programme (which they had to pay for), were being crowded out from existing lessons by swimmers on the programme (who did not have to pay), or were simply swimming more frequently than they had before, either within or outside the programme (Henry, 2016: 27).

In summary, the three approaches described above to evaluate the performance of the Olympic Games are not fully satisfactory.

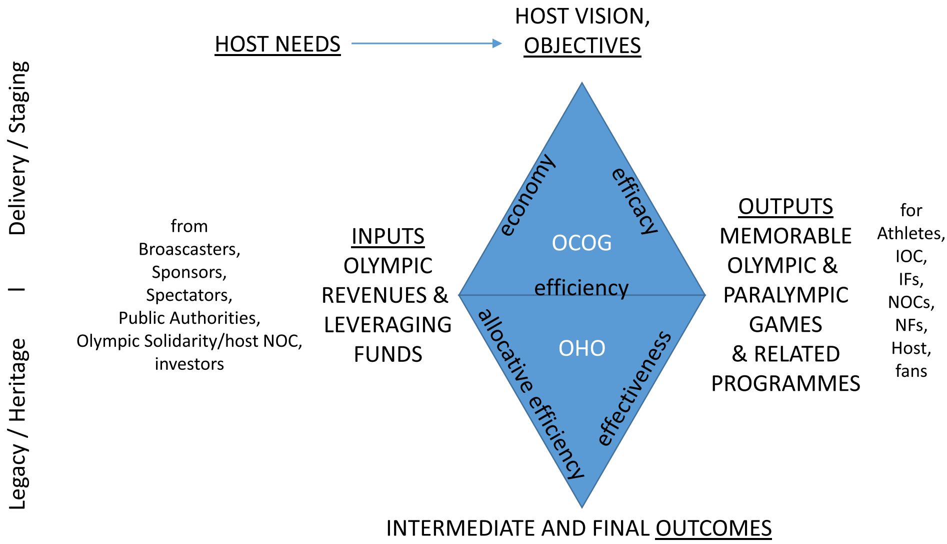

Figure 2. The Olympic diamond (source: the author).

4. The Olympic Diamond: A Performance Evaluation Framework

The Olympic diamond is based on two classic approaches to evaluating public action: the traditional inputs (means or resources)-outputs-outcomes model, which Pollitt and Et Bouckaert (2011: 16) called the "conceptual framework of [public] performance", and the public-management triangle, which links objectives, inputs (means or resources) and outputs (Santo & Verrier, 1993: 68; DIRE, 2002: 24). These two approaches have been combined to form, for example, the model of public management introduced by Switzerland's federal administration in 2017 (Chappelet, 2018), which Santo and Verrier (1993: 110) refer to in France and elsewhere as the public action framework (Figure 1).

Figure 1 shows the four parameters (vertices) and five criteria (edges) that have to be taken into account when evaluating the performance of public policies. This model can also be applied to the Olympic Games, considered a public project implemented in association with a variety of partners within the host territory. The resulting "Olympic diamond" (Figure 2) incorporates the two fundamental dimensions of hosting the Games: their delivery and their legacy. Delivering the Olympics is imperative for both the OCOG and the host territory's governing authorities. Girginov (2014: 5) expressed this perfectly in his description of the preparations for London 2012: "successful delivery of the Games became the order of the day, and anything else was seen as a distraction from the main goal." The event must be delivered on time, preferably within budget and to the best possible quality, but this is just an intermediate goal. The host territory's final goal is not, and has not been for many years, to stage two weeks of sport competitions; it is to keep the legacy promises made to the territory's population (by the authorities) and other stakeholders. Responsibility for delivering the Games mostly falls on the shoulders of the temporary OCOG (upper triangle), whereas responsibility for the legacy falls on several bodies, which must be coordinated by a permanent organisation close to the public authorities, here labelled the Olympic Heritage Organisation (OHO, lower triangle).

The following paragraphs describe the parameters (vertices) and evaluation criteria (edges) that make up the Olympic diamond, illustrating each aspect with examples from previous editions of the Games, especially London 2012.

Olympic objectives must be the result of a strategic vision for the Games' host territory, based on needs identified by its elected officials. The vision for the Olympics formulated by the organising committee for Atlanta 1996, the centenary edition of the Games, provides a sort of generic vision of what an Olympic project's objectives can/should be (adapted from ACOG, 1997: 20):

1. To conduct the Games with sensitivity, integrity, fiscal responsibility, and commitment to the needs of athletes;
2. To share with the world the spirit of the host country, region and city;
3. To leave a positive physical and spiritual legacy/heritage and an indelible mark on Olympic history by staging the most memorable/unique Games ever.

In fact, every Olympic host aims (i) to deliver the best possible Games, notably for the athletes, without incurring a deficit, (ii) to inject them with local colour, and (iii) to leave a substantial tangible and intangible legacy. The first generic objective is the project's foundation; the second objective ensures an edition of the Games stands out from other editions and transmits the host city's, region's and country's message; the third objective is a reminder that legacy is an essential issue and not limited to tangible heritage.

Every host has to adapt these generic objectives to local circumstances, in line with the requirements of sustainable development, for instance by explaining how "their" Games should stand out from others and how they intend to achieve these generic objectives (from strategic to action plan). If possible, objectives should be defined at the bid phase, even if they have to be modified or added to should the Games be obtained. The IOC's decision to award an Olympic Games to a city can be considered, to a certain extent, an endorsement of that city's objectives.

Unfortunately, these objectives are not always set out clearly, so the host population tends to expect too much from the Games and/or starts wondering why they should host them (or even demands that their city withdraws its bid, as has occurred on several occasions since 2010). With this in mind, Olympic objectives should be targeted for the host population and restricted in number. Moreover, it is difficult to evaluate an Olympic project if its objectives are too vague. In some cases, the IOC feels the need to summarise a bid's objectives for its members (see, for example, the IOC's evaluation report for the three candidate cities for the 2014 Winter Olympics, IOC, 2007: 10, 48 and 30).

After London had been awarded the Games, the DCMS formalised the objectives for London 2012 into five legacy promises (listed above, DCMS, 2008). These objectives clearly fall within the third category of generic objectives and are both tangible (2 and 1c) and intangible (1a, 1b, 3, 4 and 5). In 2006, Britain's parliament passed legislation creating a new government body, the Olympic Delivery Authority (ODA), to oversee the building of sports facilities for the Games (objectives 2 and 1c), and the London Legacy Development Corporation (LLDC) was set up four months before the start of the Games in order to convert Queen Elizabeth Olympic Park into a new heart for East London (objective 4). So far, this objective appears to have been met (Moore, 2017). During the bid stage, London's mayor presented objectives 2 and, indirectly, 4 as his (the city's) main objectives for hosting the Olympics. Generic objectives (i) and (ii) were not mentioned explicitly by the DCMS. Nevertheless, objective (i) was an implicit requirement for operations (under the responsibility of what was called "the Olympic Board", whose members were drawn from LOCOG, the ODA, the Mayor of London's office, the Greater London Authority and the British Olympic Association) and objective (ii) was embraced by the British government when it greatly increased the budget for the opening ceremony, which was designed to give a positive and up-to-date image of the UK and can be linked with DCMS legacy promise 5 above (NAO, 2012:10, DCMS, 2008).

Inputs to the Olympic diamond (Figure 2) are the human, financial and other resources required to deliver the Games, plus other resources, most of which are financial and appertain to what is known as leverage funding. For example, if the Olympic village is built by a private developer, who will sell or let the apartments after the Games, the developer's initial investment can be considered leverage funding. Delivering the Games requires both operational resources and investment resources. The four main sources of operational resources are, in order of importance for London 2012: domestic sponsorship (i.e., from sponsors with rights only within the Olympic territory), ticket sales (from spectators), the IOC's contribution (taken from the international television and marketing rights to the Games) and subsidies (from the public authorities). These resources would not be available to the Olympic territory without the Games (at least not in the same amounts). Investment resources are the sums the public authorities allocate for building sports facilities and/or general infrastructure for the Games.

In addition to the resources required to deliver the Games, the private and public sectors provide further resources, before or even after the Games, in order to, for example, build hotels in the Olympic city, support national federations as a way of improving medal chances, and cover additional expenditure by NOCs, especially the host NOC. These resources, which are invested in the expectation of benefiting from the Games' leverage effect, are essential to obtaining and maintaining a true Games legacy (Chalip, 2017). Just as important as these financial resources are the millions of hours of work by the host territory's civil servants (human resources), who are taken away from their usual tasks by the Olympic project.

The total cost of delivering London 2012 was at least GB£11,331 million, financed by LOCOG's budget of GB£2410 million (balanced and self-financed) plus an additional GB£8921 million provided by extra government funding (GB£5871 million), National Lottery funding (GB£2175 million), and local- and regional-authority funding (GB£875 million) (NAO, 2012: 9).

The amount of leverage funding is unknown, but we know that some London hotels and parts of the underground were renovated by their owners for the 2012 Games. In addition, between 2006 and 2012, the government agency UK Sport spent

GB£264 million on the Talent To Podium programme, which helped British athletes win 65 medals at their home Olympics (www.uksport.gov.uk/our-work/investing-in-sport/historical-funding-figures). London 2012's Olympic village was built by a private developer (Qatar Diar, in association with Delancey Estates), but only after the original Australian developer had backed out, at a cost to the British taxpayer of GB£275 million (Girginov, 2014: 8). In addition, converting the Olympic stadium for use after the Games (roofing all the stands and installing removable seating on the athletics track in order to turn it into a football stadium that could still be used for athletics meetings, etc.) cost around GB£133 million, financed by the public authorities. London's mayor took full control of the LLDC when an extremely critical report revealed the massively escalated cost of this post-Games work which was managed by the LLDC (Moore Stephens, 2017).

Outputs consist mostly of the Olympic and Paralympic Games (the Paralympic Games have been the responsibility of the OCOG for a few Olympiads) and a number of more-or-less obligatory Games-related programmes, such as the Olympic Cultural Programme and the Olympic Values Education Programme. In some cases, these programmes are financed by the OCOG, but their size, and therefore cost, is left to the OCOG's discretion. The beneficiaries of these basic outputs are athletes, who must be given good conditions in which to compete – for free; the IOC, which relies on the Games for its revenues; international sport federations (IFs) and NOCs, which manage the competitions, send their teams and receive a share of the revenues after the Games; spectators, who buy tickets; the host population; and other stakeholders.

The London 2012 Olympic Games and Paralympic Games were delivered as scheduled, between 27th July and 2nd August 2012, and between 29th August and 9th September 2012, respectively. LOCOG sold GB£659 million worth of tickets (NAO, 2012: 10) and received GB£651 million from the IOC, as its share of the more than US$3500 million in broadcasting and sponsorship rights the IOC earned from the London Games (IOC, 2018: 24). In addition to the sports competitions, LOCOG organised a vast cultural programme (more than 500 events, exhibitions, shows and concerts, etc. between 2008 and 2012, at a cost of GB£97 million, partly funded by Arts Council England and Legacy Trust UK) and a sports education programme for school athletes that culminates in the (UK) School Games, an annual event held in Olympic or other sports venues that is sponsored by Sainsbury's and which continues today with finance from Legacy Trust UK. Numerous sports, cultural and other programmes were financed by private initiatives (non LOCOG) and received the "Inspired by London 2012" label (the LOCOG logo without the Olympic Rings, which are reserved for official sponsors). All these related programmes form part of the output of the 2012 London Olympics and contribute to the mark they made.

Finally, outcomes are all the Games' tangible or intangible impacts and effects, which may be expected or unexpected, planned or unplanned, positive or negative, short-term or long-term, linked to the territory or to a person who participated directly or indirectly in organising the Games, etc. These outcomes can be categorised in many different ways, depending on how the term legacy is defined. The Olympic Charter highlights the IOC's desire to promote "positive legacies"; Hiller (2003), Kaplanidou (2012) and others used the more neutral term "outcomes".

An important and classic distinction is made between intermmediate and final outcomes (Pollitt & Et Bouckaert, 2011: 16). An intermmediate outcome is a direct consequence of staging the Games, whereas a final outcome is a contribution to the host territory's objectives and vision, which should be defined during the bid stage. An Olympic stadium used for a relatively short period (several years) beginning at or just before the Games is an example of an intermmediate outcome. Athens' Panathinaikos Stadium, which was rebuilt in marble for the 1894 Olympics (athletics), used for the 2004 Games (archery and finish of the marathon), still hosts certain ceremonies and competitions and has become a city monument, is an example of a final outcome. Queen Elizabeth Olympic Park is currently an intermmediate outcome; the well-being it will provide for future generations of visitors and locals is a final outcome. Final outcomes, which can be considered contributions to a territory's tangible or intangible heritage, as defined in the UNESCO world heritage conventions (Chappelet, 2015), can never be guaranteed.

The IOC envisions six types of positive legacy (intermmediate and final outcomes), which it divides into two categories: structural changes and innovation left after the Games in space (urban development; environment enhancement) or in people (policy; human skills, knowledge and networks; brand equity; beliefs and behaviour). In the case of London 2012, objectives 1c, 2 and 5 (DCMS, 2008) can be considered to focus on intermmediate outcomes, whereas objectives 1a, 1b, 3 and 4 are more concerned with final outcomes and correspond to long-term public policies. Applying the IOC's categorisation, objectives 1c, 2 and 4 concern space, whereas objectives 1a, 1b, 3 and 5 affect people. Queen Elizabeth Olympic Park will probably become part of London's heritage, alongside Hyde Park and Regent Park, large areas of greenery within the city that were set aside at the beginning of the 19th century and which are now considered the "green lungs" of London.

In order to assess Games performance, the four parameters presented above (the four vertices of the Olympic diamond) have to be evaluated with respect to five criteria: efficiency, efficacy, economy, allocative efficiency and effectiveness (the five edges of the diamond). The following paragraphs present each of these criteria in more detail and, using London 2012 as an example, show how they can be used to provide an overview of Games performance and management.

Efficiency is the relationship between the resources invested in a project (inputs) and its productions (outputs). A project is deemed efficient when the desired productions are obtained while expending the least resources, that is, when there is minimal wastage of resources, especially financial and human resources. The Data Envelopment Analysis (DEA) method can be used to assess the efficiency of public-sector organisations.

In the case of hosting the Olympic Games, the aim is to minimise the cost of delivering the event while providing the required quality, as defined in the Host City Contract and its appendixes. Clearly, some recent Olympic Games have cost more than others. This may be due to a lack of efficiency by the OCOG's management and/or to other local factors, such as the cost of living in the host city or corruption in the host country. The IOC's Games Management 2020 strategy aims to reduce the cost of both bidding for and delivering the Games (following recommendations 1, 3 and 12 of Agenda 2020 roadmap for the coming years, IOC, 2014). The OECD (Organisation for Economic Development and Cooperation) recently proposed ex-ante control mechanisms to better manage the procurement processes of large infrastructure projects and thus reduce/eliminate corruption.

The total cost of London 2012 (approximately GB£11,331 million) was probably much lower than that of Beijing 2008 or Rio 2016, although it is difficult to ascertain the budgets for either of these events with any certainty. Hence, London 2012 can be said to have been more efficient than both its predecessor and its successor, even if LOCOG's glowing report should not be taken entirely at face value (see Girginov, 2014: 7-8). The question remains as to whether Summer Games can be delivered at even lower cost.

Traditionally, efficacy measures the relation between the objectives set and productions (outputs). The aim is to determine whether the right objectives were set compared with the outputs obtained. In the case of an Olympic project, this equates to knowing whether the Games and associated programmes were the right vehicle for attaining the objectives that were set, either when drawing up the bid or, as for London 2012, after the Games were obtained. The answer to this question is political and depends on the territory's development needs, especially in terms of urban development, and the objectives set, in terms of how ambitious they are and their validity in the eyes of the host population. (Did the British public see the value of London's objective 1b?) Hence, efficacy is a criterion that must be examined before deciding to bid for the Games, otherwise there is a risk of opposition to hosting them after they are obtained (as at Vancouver 2010) or of being forced to withdraw from hosting them (as for Denver, replaced by Innsbruck for the 1976 Winter Olympics). One way of resolving this political conundrum is to hold a referendum before launching a bid (as Hamburg and Munich did before bidding for the 2024 Summer Olympics and 2022 Winter Olympics, respectively). Non-binding referendums or polls can also be used.

Economy or relevance examines the relationship between objectives and the resources allocated to meeting them. Are these resources sufficient to attain the objectives set, which may be too ambitious? Once again, this is a political issue that can only be settled if objectives are formulated precisely. The Olympic Games have sometimes been seen as the solution to all a city's problems, a cure for all ills. Of course, this is not the case, even if the Games can give a boost to certain urban projects and catalyse others (which can also have drawbacks in terms of local democracy). London 2012's legacy promises covered just five main objectives, which appeared to be achievable for the Summer Games (essentially, increase participation in sport; build an Olympic park and other sports facilities; give the UK a modern image). There were no pretensions to increase tourism (London is already a major tourist destination) or improve the transport network (which was done, nevertheless, but through other budgets).

Allocative efficiency concerns the relation between resources (inputs) and productions (outcomes). In contrast to efficiency (sometimes referred to as technical or productive efficiency), which is directly concerned with the cost of the Games, allocative efficiency is concerned with optimising the way resources are allocated in order to obtain the desired outcomes. Hence, it addresses the issue of opportunity cost. Would it be better to allocate resources directly to obtaining the desired results (depending on the objectives) or even to other (cheaper) projects aimed at achieving these same results? Globally, the opportunity cost of the Olympics is favourable if the calculation is based only on the economic impact due to external inputs obtained through hosting the Games, which represent a substantial injection into the territory's economy that would not have occurred without them. The allocative efficiency of London 2012 was probably good considering the substantial funds obtained from private external sources (sponsors, out-of-town spectators and IOC).

Effectiveness measures the relation between outputs and final results (final outcomes). Are the outputs (i.e., the Games and other programmes associated with them) those that generate the results expected? The difference between efficacy and effectiveness is subtle and used most frequently with respect to testing new drugs, but it can be illustrated through an Olympic example. The efficacy of the Games in attracting widespread and positive media coverage (output or intermediate result) is due to the Games' effectiveness in raising the destination's profile and image (intended outcome or final result). Effectiveness raises the issue of the causal relationship between outputs and outcomes.

In 2018, six years after the event, the London 2012 Olympics can be said to have met objectives 1b, 1c, 2 and 5. However, objective 1a (greatly increasing participation in sport) is unlikely to be achieved and may be unattainable (Weed et al., 2015). Indeed, in 2015 the British government decided to change its policy in this area to improve sport participation. The effectiveness of the Games with respect to objective 3 is also open to discussion: Has London 2012 really inspired a generation of young people in Britain and abroad? A few more years are needed before a final conclusion can be reached with respect to objective 4, but things seem to be moving in the right direction (Moore, 2017). Objective 5 has been attained because the United Kingdom has improved or maintained its ranking on various country brand indexes (http://countrybrandingwiki.org/index.php/United_Kingdom), but Brexit (decided by referendum in 2016) has probably had a negative impact on the country's brand.

Finally, this evaluation framework does not consider causal mechanisms. It does not explain why outcomes due to the Games took place and therefore identify why a policy succeeded or failed in a certain context. Only by doing so can future Games policies be adapted to improve their effectiveness. Realist evaluation methods offer a possible way of improving understanding of these causes (Henry, 2016: 28).

5. Conclusion

This paper describes the "Olympic diamond", an approach to assessing Olympic Games performance, based on concepts used to evaluate public action. The Olympic diamond highlights the importance of four parameters (the diamond's vertices: objectives, inputs, outputs and outcomes) for defining and steering an Olympic project, together with five evaluation criteria (the diamond's edges: efficiency, efficacy, economy, allocative efficiency and effectiveness). It brings together two fundamental issues inherent to every Olympic project: quality delivery/staging and a positive legacy/

heritage. In particular, it highlights the need to define clear and appropriate objectives for the project and to differentiate between outputs (delivery of the Games and associated programmes) and outcomes (desired results over the longer term).

The Olympic diamond builds on earlier approaches to evaluating overall Games performance, most notably the economic impact studies carried out since the 1980s, the IOC's OGI model, which was applied in full to Vancouver 2010, and the meta-evaluation commissioned for London 2012. The Olympic diamond can be used to increase the transparency and accountability of organising the Games, as called for by Stewart (2012) following her in-depth experience of working with LOCOG.

The next step is to assess the Olympic diamond's strengths and weaknesses by testing it on concrete cases. This is currently being done with respect to the first three editions of the Winter Youth Olympic Games (ex-post for Innsbruck 2012 and Lillehammer 2016, ex-ante for Lausanne 2020), thereby comparing the performance of three editions of the same event over 12 years.

Acknowledgements

I should like to extend my sincere thanks to the anonymous reviewers whose comments on the first draft of this article were very much appreciated, and to all those who have provided comments over various presentations.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Notes on Contributor

Jean-Loup Chappelet is a professor of public management at the Swiss Graduate School of Public Administration, University of Lausanne, Switzerland. His research interests include strategic management, nonprofit management, and global sports governance.

References

ACOG (1997). The Official Report of the Centennial Olympic Games, vol. 1. Planning and Organizing, The Atlanta Committee for the Olympic Games.

IOC (2014). *Olympic Agenda 2020, 20 + 20 recommendations*. Lausanne: International Olympic Committee.

Baade, R. (2006). The economic impact of mega-sporting events. In W. Andreff & S. Szymanski (Eds.), *The handbook of the economics of sport*. London: Edward Elgar (Chapter 16).

Barget, E., & Gouguet, J.-J. (2010). *Evénements sportifs: impacts économiques et sociaux*. Bruxelles: DeBoeck.

Brabazon, M. (1999). The legal structure of the Sydney Olympic Games. *University of New South Wales Law Journal*, 22(3), 662.

Cashman, R. (2003). What is Olympic legacy. In M. de Moragas, Ch. Kennett, & N. Puig, (Eds.) *The Legacy of the Olympic Games 1984–2000, International Symposium* (pp. 31–42). Lausanne: IOC Documents of the Museum.

Chernushenko, D., & van der Kamp, A. (2001). *Sustainable sport management: running an environmentally, socially and economically responsible organization*. New York: United Nations Environment Programme.
Chalip, L. (2017). Trading legacy for leverage. In I. Britain (Eds.). *Legacies and mega-events: Fact or fairy tales* (pp. 25–41). London: Routledge.
Chappelet, J.-L. (2008). Olympic environmental concerns as a legacy of the winter games. *International Journal of the History of Sport*, 25(14), 1884–1902.
Chappelet, J.-L. (2012). Mega sporting event legacy: A multifaceted concept. *Papers of Europe*, 25, 76–86.
Chappelet, J.-L. (2015). Heritage sporting events and place marketing in *Sustainable Development of Sports Tourism*, (Matej Plevnik et al., Eds.), 57–72.
Chappelet, J.-L. (2017). L'avenir des candidatures olympiques. *Jurisport, Juillet-Août*, 177, 42–45.
Chappelet, J.-L. (2018). *Vers un modèle tridimensionnel du management public et de la politique publique, suivi de Le nouveau modèle de gestion publique suisse*. Lausanne: IDHEAP Working Paper 1/2018.
de Moragas, M., Kennett, Ch. & Puig, N. (2003). (Eds.) *The Legacy of the Olympic Games 1984-2000, International Symposium*. Lausanne: IOC Documents of the Museum.
DCMS (2008). *London 2012 Olympic and Paralympic Games impacts and legacy evaluation framework*. Retrieved fromhttp://www.gamesmonitor.org.uk/files/DCMS_Olympic_Evaluation_final_report.pdf (Accessed 1st February 2018).
DIRE (2002). *Le contrôle de gestion dans les administrations de l'Etat, éléments de méthodologie*. Paris: Délégation interministérielle à la réforme de l'Etat, juin.
Dubi, C., Hug, P.-A., & van Griethuysen, P. (2003). Olympic Games Management: From the candidature to the final evaluation, an integral management approach. In M. de Moragas, Ch. Kennett, & N. Puig (Eds.). *The Legacy of the Olympic Games 1984–2000, International Symposium* (pp. 403–413). Lausanne: IOC Documents of the Museum.
ESCR (2015). *Olympic Games Impact Study – London 2012, Post-Games Report*, A report compiled for the International Olympic Committee by the University of East London, funded by the Economic and Social Research Council.
Feng, H.-L. (2011). *The humanistic values of the Beijing Olympics*. Beijing: Silkroad Press.
GAO (2001). *Costs to Plan and Stage the Games in the United States*, Report to the Ranking Minority Member Sub-Committee on the Legislative Branch Committee on Appropriations, US Senate, November, Washington DC: General Accounting Office.
Giesecke, J., & Madden, J. (2011). Modelling the Economic Impacts of the Sydney Olympics in Retrospect – Game Over for the Bonanza Story? *Economic Papers*, 30(2), 218–232.
Girginov, V. (2014). Researching and writing about the London Games: An introduction. In V. Girginov, (Ed.). *Handbook of the London 2012 Olympic and Paralympic Games*. London: Routledge.
Grohmann, K. (2016). Rio 2016, the most perfect imperfect Games: IOC, *Reuters*, December 6.
GT (2013). Report 5: Post-Games Evaluation, Meta-Evaluation of the Impacts and Legacy of the London 2012 Olympic Games and Paralympic Games, Prepared by: Grant Thornton et al. for the Department for Culture, Media & Sport, July.
Henry, I. (2016). The meta-evaluation of the sports participation impact and legacy of the London 2012 Games: Methodological implications. *Journal of Global Sport Management*, 1(1-2), 19–23.
Hiller, H. (2003). Toward a science of Olympic Outcomes: The urban legacy, in M. de Moragas, Ch. Kennett, & N. Puig (Eds.). *The Legacy of the Olympic Games 1984–2000, International Symposium* (pp. 102–109). Lausanne: IOC Documents of the Museum.
IOC (2007). *2014 Evaluation Commission Report*. Lausanne: International Olympic Committee. June.
IOC (2017). *Olympic Games Sustainability, Impact and Legacy Bibliography*, 28 February, Lausanne: International Olympic Committee Olympic Study Center.

IOC (2018). *Olympic Marketing Fact File 2018 Edition*. Lausanne: International Olympic Committee.
Kaplanidou, K. (2012). The importance of legacy outcomes for Olympic Games four summer host cities residents' quality of life, 1996–2008. *European Sport Management Quarterly*, 12(4), 397–433.
Malfas, M., Theodoraki, E., & Houlihan, B. (2004). Impacts of the Olympic Games as mega-events. *Proceedings of the Institution of Civils Engineers*, 157(3), 209–220.
Moore, M. (2017). Olympic development in London's Stratford wins gold medal, *The Financial Times*, 20 September. Retrieved from www.ft.com/content/9eb7feca-7063-11e7-93ff-99f383b09ff9 (Accessed 1st February 2018).
Stephens, M. (2017). *Moore Stephens Olympic stadium review*. London: Moore Stephens Consultancy.
NAO (2012). *The London 2012 Olympic Games and Paralympic Games: Post-Games review*, Report by Comptroller and Auditor General, National Audit Office, HC 794, 5 December.
Parent, M. M., & Chappelet, J.-L. (2016). *The handbook of sports event management*. London: Routledge.
Pelham, F. (2011). Sustainable Event Management: The Journey to ISO 20121. In Jill Savery and Keith Gilbert (Eds.). *Sustainability and Sport*. Champaign, IL: Common Ground.
Pollitt, C., & Et Bouckaert, G. (2011). *Comparative public management reform: a comparative analysis*. Oxford: Oxford University Press.
Preuss, H. (2015). A framework for identifying legacies of a mega sport event. *Leisure Studies*, 34(6), 643–664.
Preuss, H. (2016). The Olympic Games: Winners and losers. In Barrie Houlihan & Dominic Malcom (Eds.). *Sport and Society*. London: Sage (Chapter 18).
Rand (2007). *Setting the agenda for an evidence-based Olympics*, (Technical Report). London: Rand Europe.
Santo, V.-M., & Verrier, P.-E. (1993). *Le management public*. Paris: Presses universitaires de France.
Scheu, A., & Preuss, H. (2017). *The Legacy of the OIympic Games from 1896-2016*, A Systematic Review of Academic Paper series – Mainzer Papers on Sports Economics and Management, 14.
SLOOC (2002). *Official Report of the XIX Olympic Winter Games Salt Lake City 2002*. Salt Lake Olympic Organising Committee.
Stewart, A. (2012). Olympic Host Cities Need Transparency, not Knowledge Transfer, *Harvard Business Review*, August 7. Retrieved from https://hbr.org/2012/08/olympic-host-cities-need-trans (Accessed 5th February 2018).
UBC (2013). Better transit, more facilities: locals enjoy 2010 Winter Games Benefit, *University of British Columbia Press Release*, October 23. Retrieved from http://news.ubc.ca/2013/10/23/better-transit-more-facilities-locals-enjoy-2010-winter-games-benefits (Accessed 1st February 2018).
VanWynsberghe, R. (2015). The Olympic Games Impact (OGI) study for the 2010 Winter Olympic Games: strategies for evaluating sport mega-events' contribution to sustainability. *International Journal of Sport Policy and Politics*, 7(1), 1–18.
Weed, M., Coren, E., Fiore, J., Wellard, I., Chatziefstathiou, D., Mansfield, L., & Dowse, S. (2015). The Olympic Games and raising sport participation: A systematic review of evidence and an interrogation of policy for a demonstration effect. *European Sport Management Quarterly*, 15(2), 195–226.