

**Telfer School of Management
University of Ottawa**

EXECUTIVE MASTERS IN SPORTS ORGANISATION MANAGEMENT



**MEMOS XXVII
2024-2025**

FROM VISION TO IMPACT: SUSTAINABILITY AND LEGACY ACROSS OLYMPIC HOST CITIES

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Executive Summary

This research project addresses the importance of sustainability and legacy in specific past, present, and future editions of the Olympic Games. The selected editions include London 2012, Rio 2016, Paris 2024, Los Angeles 2028 (LA 28), and Brisbane 2032. Experts from the Olympic Movement, some of whom were at the heart of organising committees or/and are part of the International Olympic Committee, were interviewed to highlight key elements of sustainability and legacy strategies.

Through the insights gathered, it was possible to identify initiatives and projects that have been implemented, are currently underway, or are planned for each edition. Furthermore, each expert provided recommendations on how the future of the Olympic Games can be envisioned from a sustainability and legacy perspective.

Based on these analyses and testimonies, three main recommendations were formulated to guide future editions of the Olympic Games:

- Establishing independent bodies to provide third-party assurance on sustainability and legacy efforts.
- Utilising new technologies to achieve sustainability goals and engage stakeholders in sustainability efforts.
- Fostering knowledge transfer between different Organising Committees for the Olympic Games (OCOGs).

These recommendations could contribute to a more effective integration of sustainability and legacy considerations.

Résumé

Ce projet de recherche traite de l'importance de la durabilité et de l'héritage dans le cadre des Jeux Olympiques d'été, en s'appuyant sur l'analyse de cinq éditions spécifiques : Londres 2012, Rio 2016, Paris 2024, Los Angeles 2028 et Brisbane 2032. Ces éditions ont été choisies pour illustrer l'évolution des stratégies en matière de durabilité et d'héritage au sein du Mouvement Olympique.

Afin de mieux comprendre les approches adoptées, des experts ayant occupé des rôles clés au sein des comités d'organisation ou du Comité International Olympique (CIO) ont été interrogés. Leurs témoignages ont permis de mettre en lumière les initiatives concrètes mises en œuvre, en cours ou prévues, pour chaque édition. Ces échanges ont également permis de recueillir des recommandations sur la manière dont les Jeux Olympiques peuvent continuer à évoluer dans une perspective durable et porteuse d'héritage.

À partir de ces analyses et témoignages, trois recommandations principales ont été formulées pour guider les futures éditions des Jeux Olympiques comme suit :

- Établir des organismes indépendants pour fournir une assurance tierce sur les efforts en matière de durabilité et d'héritage;
- Utiliser les nouvelles technologies pour atteindre les objectifs de durabilité et impliquer les parties prenantes dans ces efforts;
- Favoriser le transfert de connaissances entre les différents comités d'organisation des Jeux Olympiques (COJOs).

Ces recommandations pourraient contribuer à une intégration plus efficace en matière de durabilité et d'héritage.

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Introduction:

The International Olympic Committee's (IOC) primary products are the Olympic Games and Olympic Winter Games, which occur every four years, staggered two years apart. The Olympic Games represent one of the world's largest organised events. Hosting the Games requires tremendous resources, including substantial funding, extensive workforce (comprising OCOGs and volunteers), and numerous venues and infrastructure to accommodate such mega-events.

These resources are key to supporting sustainability efforts and are crucial to the achievement and success of the Olympic Games. Sustainability is one of the IOC's Working Principles, alongside Universality and Solidarity, Unity in Diversity, and Autonomy and Good Governance. For the IOC, incorporating sustainability as a working principle means ensuring feasibility and maximizing positive impact while minimizing negative effects on social, economic, and environmental spheres (International Olympic Committee & Bach, 2017).

The IOC has a Sustainability strategy, implemented by the Corporate and Sustainable Development department, which ensures sustainability remains central to the IOC by incorporating various requirements as soon as a potential future host enters into dialogue with the organisation.

IOC's Engagement with UN Sustainable Development Goals

As part of this Strategy, the Olympic Agenda 2020, predecessor of the Olympic Agenda 2020+5, reinforced the IOC's commitment to forming alliances with external entities to facilitate constructive social change. This commitment was particularly significant when the United Nations (UN) General Assembly reaffirmed in September 2015 the vital role that sport plays in advancing the UN 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) (International Olympic Committee & Bach, 2017c). The UN 2030 Agenda for Sustainable Development states:

"Sport is an important enabler of sustainable development. We recognise the growing contribution of sport to the realisation of development and peace in its promotion of tolerance and respect and the

contributions it makes to the empowerment of women and young people, individuals and communities as well as to health, education and social inclusion objectives" (United Nations, n.d.).

Topic overview and objectives

The Olympic Games, as the IOC's primary product, provides worldwide exposure and generates essential financial resources for the entire Olympic Movement. Organising such a major event requires diverse stakeholders and comprehensive studies, potentially impacting both a host nation's society and ecosystem. For long-term viability, this ecosystem must be sustainable. Given current environmental, social, and economic challenges, sustainability must remain central to all global projects and discussions, continuously evolving through time.

The IOC's values of Excellence, Friendship, and Respect represent fundamental principles applicable to daily life. The Olympic Games serve as the primary showcase for these values. The Olympic Movement, overseen by the IOC, ensures the application of these values. As employees of this influential organisation, we bear the responsibility to develop solutions and recommendations ensuring the Olympic Games' evolution, contributing to a better world through sport, and most importantly, bringing joy and peace through the events and programmes, once every four years.

This research project aims to provide recommendations for ensuring the Olympic Games' continued relevance and growth, focusing on sustainability in its globality. The project structure will be as follows:

1. Sustainability and legacy actions of the Olympic Games: This section will examine two past Olympic Games editions, **London 2012** and **Rio 2016**, analysing positive and negative key takeaways from their sustainability and legacy actions.
2. Sustainable actions and implementation for **Paris 2024**: As the first Games edition developed under the "Games in a New Era" candidature process, this section will evaluate the actions and measures established to improve upon past Games editions' sustainability aspects.

3. Sustainable plans for **Los Angeles 2028** and **Brisbane 2032**: This final section will examine the planned sustainable objectives for these future editions, serving as the project's conclusion. Recommendations will emerge from the key findings of all three sections.

The project demonstrates how learning from past experiences and looking ahead to the future can drive improvement.

Research questions

To guide this research project effectively, two fundamental questions have been formulated:

- **What are the critical conditions necessary to ensure the long-term sustainability of the Olympic Games?**
- **What are the current sustainability implementations, and what potential future initiatives could be developed?**

Literature Review

Definition of Sustainability

According to Moore et al. (2017), the lack of a standard definition for sustainability makes it challenging for researchers to measure and evaluate the concept effectively. Brundtland (1987) provided a foundational definition, describing sustainability as "*the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs*". This definition aligns with the Triple Bottom Line (TBL) approach, which encompasses three pillars: People (Social), Planet (Environmental), and Profit (Economic). These pillars ensure the well-being of communities and workers, consider the Earth's resources, and create economic prosperity for organisations (Mukherjee et al., 2015).

Several models exist to understand and implement sustainability, including the Three Pillar Model, the Egg of Sustainability Model, Atkisson's Pyramid Model, and the Prism of Sustainability. **This research project follows the IOC Sustainability model, highlighting the Three Pillar Model that integrates social, environmental, and economic dimensions.** Despite covering the principal areas of many organisations, Dixon & Gorecki (2018) expanded the definition of sustainability to include the ability to address complex challenges with evolving business innovations, applications, methods, products, and processes adapted to changing situations. Examples of sustainable challenges include recognising social sustainability, balancing production and consumption, promoting education and human development, and fostering cooperation among stakeholders and governments. Strategies to overcome these challenges include developing flexible and clear objectives, integrating sustainability with business processes, encouraging innovation and efficiency, and engaging stakeholders in decision-making.

The IOC Sustainability strategy and the United Nations goals

The International Olympic Committee (IOC), a non-profit organisation promotes the organisation of the Olympic Games as a catalyst to "*Build a better world through Sport*" (IOC - International Olympic

Committee, Olympics.com, n.d.-b); as opposed to Müller et al. (2021) stating that the Olympic Games are considered the most expensive serial human intervention globally. The growing scale of the Olympic Games, both winter and summer editions, is characterised by geographical, urban, and financial expansion. Jastrzābek (2024) emphasises that global challenges such as climate change, technological progress, and social protection have increased the focus on sustainability in economic, social, and environmental domains. As the governing body of the Olympic Movement, the IOC is responsible for finding adequate and agile solutions, serving as roadmaps and guidelines for candidate and host cities to ensure the continuity of the Olympic Games.

The IOC's sustainability strategy is detailed in various reports and guidelines. The Olympic Agenda 2020, introduced by President Thomas Bach, identifies sustainability as one of its three pillars, alongside credibility and youth (International Olympic Committee & Bach, 2017). Sustainability is central to four key recommendations from Olympic Agenda 2020:

1. **Shape the bidding process as an invitation:** Allowing the organisation of preliminary competitions or entire sports disciplines outside the host country for sustainability reasons.
2. **Evaluate bid cities:** Assessing key opportunities and risks related to sustainability and legacy, with the help of third-party experts.
3. **Develop a Sustainability strategy:** Implementing sustainability strategies for future Olympic Games editions.
4. **Incorporate sustainability in daily operations:** Embedding sustainability within the Olympic Movement's daily activities (International Olympic Committee, 2014).

Pedersen (2018) noted that environmental degradation and social tensions have put pressure on societies, companies, and organisations due to growing populations and increasing consumption. This has led the IOC to strengthen partnerships with external organisations to bring positive societal change. The United Nations (UN) and the IOC have collaborated closely, recognising the role of sport

in improving health and developing nations in poverty. In 2015, the UN launched the Sustainable Development Goals (SDGs), targeting health, employment, education, peace, justice, gender equality, and climate action. President Bach expressed the Olympic Movement's support for the SDGs, integrating many recommendations of Agenda 2020 with these goals (Kidd et al., 2024).

The UN General Assembly declared that sport plays a crucial role in supporting the UN 2030 Agenda and the 17 SDGs. The IOC aims to contribute to 11 of these goals, as shown in Figure 1. Kidd (2024) further stated that the SDGs have become the basis for ongoing efforts to establish monitoring metrics and evaluate progress among the IOC and other entities, including international and national governments and NGOs. The IOC Sustainability strategy aligns promoting sport and Olympic values with many SDGs in health, well-being, quality education, and peace. By integrating sustainability into its activities, the IOC aims to reinforce its contribution to these SDGs while also addressing other global challenges.



Figure 1 – The United Nations Sustainable Development Goals supported by the IOC

Definition of Legacy (Olympic Legacy)

The term "legacy" refers to something that is handed down or left behind from the past. This project examines Olympic Legacy, which according to the IOC Legacy Strategic Approach is defined as "*The result of a vision. It encompasses all the tangible and intangible long-term benefits initiated or*

accelerated by the hosting of the Olympic Games/sport events for people, cities/territories and the Olympic Movement" (International Olympic Committee, 2017).

As mentioned, legacy can be differentiated between **tangible benefits** corresponding to infrastructure, venues, and urban development, and **intangible benefits** such as social inclusion, cultural enrichment, skills development, and global visibility. The IOC's legacy framework is led by the IOC Executive Board and the IOC Sustainability and Legacy Commission, in coordination with the Corporate and Sustainable Development department. It is supported by a dedicated Legacy team and cross-departmental collaboration. Strategic objectives have been determined as:

1. **Embed Legacy through the Games Lifecycle**
2. **Document, analyse, and communicate Legacy**
3. **Encourage Legacy celebration**
4. **Build strategic partnerships**

According to Gamper et al. (2025), legacy planning should aim at realising long-planned projects, strengthening political and sports-related networks, and increasing sports participation and volunteer engagement. However, negative impacts could occur, such as public scepticism due to high costs, disappointment and discouragement from repeated failed bids. Nevertheless, determining legacy plans in the early stages of a bidding process could undoubtedly yield significant and lasting positive legacies. Cities should leverage their bid to host the Games as a catalyst for development, rather than focusing solely on winning the event.

It is important to understand that sustainability ensures the legacies of sports events are not only impactful but also responsible and enduring. Legacy, in turn, provides the framework through which sustainability goals can be realised and measured over time.

Reflection on Legacy and future measures

Reflecting on the legacy of past actions and the measures implemented through the SDGs, the IOC can build a stronger strategy over the years. Metrics established through these goals will help the IOC and its stakeholders develop and refine their sustainability strategies. For example, Swiss Olympic has adopted a similar approach to build its sustainability strategy, demonstrating the broader impact of these initiatives within the Olympic Movement.

The IOC candidature process and Sustainable legacy

This research project focuses on the sustainability and legacy and innovative actions related to specific Olympic Games editions, including London 2012, Rio 2016, Paris 2024, Los Angeles 2028, and Brisbane 2032. Understanding the evolution and importance of sustainability and legacy within the IOC candidature process is required.

According to Jastrzābek (2024), the candidature process for the Olympic Games has significantly evolved over the past two decades. The Olympic Games Study Commission Report (2003) identified issues such as "*benchmark inflation*" and "*inflation of expectations*," which led to increased costs and organisational challenges for host cities. In response, the IOC introduced the Olympic Agenda 2020 (O 2020) and The New Norm (TNN) reforms in 2014, emphasising flexibility in the bidding process, cost efficiency, and sustainability.

The approach to Olympic Host Elections (2023) outlines three distinctive phases for potential hosts:

1. **Informal Exchange:** Initial discussions without obligation or commitment.
2. **Continuous Dialogue:** A non-committal and non-edition specific stage where "*Interested Parties*" (an NOC and a region, city, or country) receive IOC support to develop their candidature project.
3. **Targeted Dialogue:** The final phase where "*Preferred Hosts*", selected by the Future Host Commission and the IOC Executive Board, refine their project to increase their chances of

being elected by the Session to host the Olympic Games, Olympic Winter Games, or Youth Olympic Games.

This new approach encourages host cities to demonstrate their environmental credentials in their bids, ensuring their approach is regarded as best practice (IOC Sustainability Strategy, 2017). This includes focusing on infrastructure and building design, materials and construction, utility management and conservation (energy, water, waste), public transport provision, and the formulation of sustainability and legacy plans, as well as governance systems (Kearins et al., 2002).

However, Essex and De Oliveira Sanchez (2024) caution that sustainability strategies based on mega-events can have negative consequences, such as price inflation, gentrification, community displacement, and long-term viability issues. They argue that the record of extravagance and dubious outcomes has fostered the perception that the Olympic Games create venues and facilities that become "*white elephants*".

The London 2012 Olympic Games set new standards for Olympic-related development by being the first to thoroughly plan for the legacy from the initial bid through the long-term regeneration of the Olympic Park in the post-Games period. However, the long-term fulfilment of these promises remains disputed. In contrast, the Rio 2016 Olympics were considered as one of the least sustainable editions of the Olympic Games. Boykoff and Mascarenhas (2016) demonstrated that economic downturns, political instability, and the outbreak of the Zika virus led to the organisers' failure to meet many environmental goals, such as improving air and water quality and reducing the consumption of non-renewable resources. Additionally, Rio 2016 saw the construction of some non-ethical structures¹ that are no longer in use.

¹ As an example, the construction of a new Olympic golf course in Rio's protected Reserva da Marapendi wetlands required rezoning of an environmentally protected area, justified by cost reduction and legacy creation despite golf's limited popularity in Brazil.

The Paris 2024 Olympic Games are the first edition to be fully influenced by the IOC's Agenda 2020+5. The sustainability strategy for Paris 2024 was built on two pillars: creating a more responsible model for organising and staging major events and consolidating the social and environmental transformation and legacy of the Games (Essex & De Oliveira Sanchez, 2024).

Looking ahead, the Los Angeles 2028 Olympic Games should place sustainability at the core of their organisation. According to the IOC Evaluation Commission report (2017), performance monitoring has been established to evaluate the evolution of the OCOG's sustainable measures until the delivery of the Games. Notably, LA28 will utilize 100% existing and temporary venues, eliminating the need for new infrastructure (Olympics.com, 2028). However, as it is the case in most of the United States, the city of Los Angeles relies on a car-dependent culture. Consequently, the OCOG has deployed tremendous improvement plans in sustainable transportation (public transport, pedestrian pathways, etc.).

Lastly, Brisbane 2032 promises a robust, policy-based approach to sustainability that will benefit the city, the region, and the nation, as analysed in the Future Host Commission report to the IOC Executive Board (2021).

Methodology

To address the research questions and provide relevant recommendations, the following methodology was employed. This approach guided the formulation of pertinent questions and inquiries during interviews with various stakeholders:

1. Literature review and analysis

- The academic and field literature reviewed presents both positive and controversial perspectives on the necessity and position of the IOC's sustainability strategy, highlighting the various measures implemented. Understanding the application of

the UN Sustainable Development Goals (SDGs) by sports organisations such as the IOC requires further details and testimonies from their executives.

2. Focus on past Olympic Games

- The literature also indicates that the London 2012 and Rio 2016 Olympic Games did not achieve the expected sustainability outcomes. Therefore, it is crucial to focus certain questions on the sustainability and legacy projects of these editions.

Interviews included individuals who have either collaborated with the OCOGs or had been integral members of these committees.

3. Interviews on Paris 2024 projects

- Additional interviews were conducted regarding the sustainability and legacy projects implemented for the Paris 2024 Olympic Games. These interviews explored the results of these projects.

4. Future Olympic Games planning

- Finally, interviews were conducted with individuals working within the IOC and the respective OCOGs for the Los Angeles 2028 and Brisbane 2032 Olympic Games. These discussions focused on the sustainability and legacy strategies for these upcoming events.

This qualitative data, gathered through various testimonies, facts, and ideas, enabled the research project to conclude with specific recommendations focused on sustainable practices and legacy initiatives to ensure the continuity of the Olympic Games.

Data collection approach

This research project does not rely on quantitative metrics to demonstrate efficiency or sustainable measures implemented over time. Instead, **it examines existing and planned initiatives that serve both the Olympic Games and broader sustainability and legacy goals.**

The research primarily employs qualitative data collection through interviews with Olympic Movement experts, including representatives from the IOC and OCOGs, both past and present.

The study explores legacy, sustainable actions, and project impacts chronologically, tracking the evolution of sustainability to create a structured comparison between awareness and implementation across different Olympic cycles.

The collected data aim to address the following critical research questions:

- 1. What are the essential conditions for ensuring the long-term sustainability of the Olympic Games?**
- 2. What sustainability initiatives are currently being implemented, and what potential future measures could be developed?**

Data collection methods and primary sources

Semi-structured interviews

Each participant was interviewed on one or more topics and/or Games editions using six to twelve targeted questions. Consistent wording was maintained for questions addressed to participants to facilitate data analysis while allowing for in-depth exploration of each expert's unique knowledge and perspective. The interview process fostered genuine, dynamic conversations, with the questionnaire serving as a flexible guide that permitted emerging questions and adaptations as needed.

The qualitative analysis prioritized depth and quality of responses over quantity of interviews, with provisions for additional interviews based on insights gained during the initial research process.

Selection criteria for interviewees

To ensure comprehensive and accurate data collection, research participants were carefully selected based on their expertise and experience within the Olympic Movement. The selection process prioritised experts with proven experience at both executive and operational levels within the sports

industry, ensuring a multi-level perspective that captures insights from all angles of sustainability challenges and strategies.

Planning phase

The template questionnaire followed the structure outlined in the methodology and incorporated the critical research questions to gather insights and develop recommendations.

Each prospective interviewee received a list of questions tailored to his or her domain of expertise prior to the interview. Sessions were scheduled for forty-five minutes to allow sufficient time for comprehensive data collection.

The main questionnaire, which can be found in the annexes of the project, comprised five distinct sections developed from literature review findings and aligned with the chosen methodology. Each section contained between four to seven questions addressing:

- UN Sustainable Development Goals
- London 2012 and Rio 2016 Games
- Paris 2024 Games
- LA 2028 and Brisbane 2032 Games
- The evolution of the IOC's bidding process

The UN SDG questions were designed to assess their importance and adoption level within organisations like the IOC, determining whether these goals function as a fundamental baseline or primarily enhance the credibility of sustainability strategies.

The two critical research questions were posed at the end of interviews, time permitting.

Secondary data sources

Supporting documentation was consulted to provide additional context and verify information gathered during interviews. This included IOC reports, candidature files, and post-Games sustainability and legacy reports, some of which were recommended by interviewed experts.

Documentation was primarily sourced from the Olympic Library or from internal sources accessed during meetings and workshops, ensuring the non-confidentiality of the sources.

Delivery phase

Research data was primarily collected through video conferences using Microsoft Teams. The platform's transcript function was consistently activated to ensure detailed and accurate documentation, eliminating the need for manual notetaking and allowing the interviewer to engage more dynamically in conversations. Each participant provided consent for recording prior to their interview.

A methodological challenge involved determining whether the number and depth of interviews conducted provided adequate representation and insight. Careful analysis of the collected data was required to balance depth of information with breadth of perspectives from Olympic Movement experts.

The interviews presented several opportunities and methodological challenges that could impact the research's comprehensiveness and reliability, including:

- Potential of receiving redundant or contradictory feedback from participants
- Knowledge gaps among selected participants that might prevent comprehensive answers
- Overly extensive responses that could obscure key areas of inquiry
- Variability in participant expertise and communication style that might compromise the collection of targeted information

Evaluation phase

Following data collection, interview transcripts were organised according to question categories and summarised to extract the most relevant and accurate responses. This preliminary analysis provided an overview of response accuracy and data sufficiency, determining whether additional interviews were needed.

The second analytical step involved structuring the findings according to the following framework:

1. The UN SDGs and the IOC Sustainability strategy
2. Prior to the IOC "Games in a New Era" candidature process:
 - London 2012
 - Rio 2016
3. Introduction of the "Games in a New Era" candidature process:
 - Paris 2024
4. Sustainability and Legacy plans for future Games editions:
 - Los Angeles 2028
 - Brisbane 2032

Multiple interviews were conducted, including:

- Three interviews were conducted on the topic of the IOC Candidature process over time and in relation to the SDGs. The interviewees included the Olympic Games Executive Director, the IOC Corporate and Sustainable Development Director, the Associate Director of Future Olympic Games Hosts, and the former IOC Head of Sustainability. These interviews revealed some similarities in the responses and underscored the overall importance of sustainability in ensuring the future of the Olympic Games.

- One interview specifically addressing London 2012 with the former Head of Sustainability of the OCOG, noting these Games as one of the most successful Olympic Games in terms of sustainability and legacy prior to Paris 2024.
- One interview dedicated to Rio 2016 with the former Head of Sustainability of the OCOG, exploring the misperceptions surrounding these Games while acknowledging the important sustainability and legacy projects established.
- One interview focused on Paris 2024 with the Chair of the Coordination Commission, who highlighted successful sustainability initiatives implemented for the Games, explained their central importance to the event, and shared insights about Los Angeles 2028, including potential AI and technology innovations for environmental monitoring and carbon footprint management.
- Questions about Los Angeles 2028 were directed to experts from both the IOC and previous OCOGs. A member of the IOC Sustainability Commission and member of the LA 2028 Coordination Commission provided some responses via email. However, securing direct interviews with current LA 2028 OCOG staff proved challenging. Recent geopolitical tensions and environmental challenges affecting Los Angeles may impact some initiatives within their sustainability strategy.
- Lastly, an interview with the Chief Impact Officer of Brisbane 2032 revealed promising sustainability plans for this future Games edition, with particular emphasis on the importance of local community engagement to create meaningful legacy outcomes.

The analysis integrated expert testimonies with documentary evidence to demonstrate the importance of sustainability and legacy across Olympic Games and develop comprehensive recommendations.

Qualitative data analysis and findings

Integration of the UN SDGs into the IOC Sustainability strategy

As expressed by the IOC Corporate and Sustainable Development Director, the IOC has incorporated the UN SDGs into its Sustainability strategy to establish a common framework for public and private stakeholders to articulate their contributions to sustainable development. Understanding how these goals are utilized and whether they inform specific measurements or initiatives at the IOC was an important research objective.

The former IOC Head of Sustainability clarified that while the SDGs provide initial guidance, they do not serve as the primary drivers of the organisation's sustainability strategy. Rather, they offer a framework and focus areas but are not considered the main factor in enhancing event sustainability. They function primarily as a common language and illustrative tool for the Olympic Movement.

For instance, the Chair of the Coordination Commission for the Paris 2024 Games noted that the OCOG developed a concrete sustainability strategy with quantified objectives that was not directly based on the SDGs, although comparison with the SDGs was conducted retrospectively. It is evident that the 17 goals presented in the IOC Sustainability strategy are integral to the requirements for hosting events and creating legacy. Each Games edition examined in this project acknowledges this common framework but does not use it as the foundation for their respective sustainability strategies.

Furthermore, the former IOC Head of Sustainability reported that the IOC has not measured the impact of their selected SDGs on sustainable projects and activities. This observation prompted the question: *What are the main challenges your organisation faces in implementing sustainability measures in relation to SDGs?*

The most relevant responses were as follows:

1. **SDG 17 – Partnerships for the goals:** Engaging with over 100 stakeholders, including internal staff and external organisations, to identify focus areas for sustainability. Ensuring that partners are aligned with long-term sustainability goals to maximize the legacy of events.
2. **SDG 12 - Responsible consumption and production:**
 - Understanding what material to the organisation and its stakeholders is crucial for driving sustainability strategies effectively.
 - Strict standards to be met for infrastructure, such as the stadium project in Brisbane, which must comply with environmental requirements.
3. **SDG 16 – Peace, justice and strong institutions:** The effectiveness of SDGs in driving sustainability is limited without legislative backing, which is necessary for broader adoption.
4. **SDG 8 – Decent work and economic growth:** Measuring the real economic impact of events, beyond the organising committee's budget, to ensure economic sustainability.
5. **SDG 13 - Climate action:** Emissions Responsibility: Defining who is responsible for offsetting CO2 emissions, whether individually or systematically by the organisers.

The purpose of associating certain SDGs chosen by the IOC was to identify correlations between sustainable challenges and the UN's SDG framework. The challenges enumerated above correspond to issues identified by several participants when discussing past Games editions.

Therefore, while the SDGs are not employed as a specific tool or checklist, they significantly contribute to the success of sustainability strategies across all organisations involved.

Prior to the "Games in a New Era" candidature process

The most pertinent questions for this section are: *What were the IOC's sustainability requirements in the past? When did sustainability become a more significant factor in the Olympic bidding process?*

It is important to first provide some context, as the Olympic Games Executive Director mentioned: *“At every moment, in the way society evolves, the IOC must remain relevant to the themes we place at the centre. Sustainability is no longer a differentiating factor. In short, it is no longer an opportunity to say, “We’re leading the pack.” Instead, it is a real risk and for me, that marks a generational shift. When, in the 2000s we started talking about the environment and then a bit later about sustainability, we were ahead of the pack, and that was a differentiating factor. And from that point of view, the paradigm has truly shifted and today, we must say it is expected and it is a real risk factor”. On the other hand, saying “We are ISO 20121 certified”, everyone will say, “That is the bare minimum” Right?”.*

The Olympic Agenda 2020 marked the starting point of the IOC Sustainability strategy. Consequently, London 2012 and Rio 2016 were not subject to specific sustainability requirements during their bidding processes in the early 2000s. The Head of Sustainability for the London 2012 Olympic Games explained that *“Sustainability was not a significant requirement from the IOC. The focus was more on environmental assessments and due diligence”* and that *“the emphasis on sustainability was a choice made by the London bid team, influenced by the experiences of previous Games like Sydney and Athens”*.

According to the former IOC Head of Sustainability, *“The implementation of the IOC Sustainability strategy at the time identified five focus areas which are very vast from an environmental perspective, but they are the ones that we agreed upon following a stakeholder consultation with over 100 people from different organisations, internal staff and IOC members asking ourselves what is material to the IOC”*. Infrastructure and natural sites, Sourcing and resource management, Mobility, Workforce and Climate were the areas chosen by the IOC. These areas were selected to minimize environmental footprint and maximize positive social and economic impact.

London 2012

Legacy at the heart of sustainability initiatives

Based on past results, measurements, and public opinion, London 2012 is regarded as one of the most sustainable Olympic Games editions, having built its program around comprehensive tangible and intangible legacy plans. As the IOC Head of Olympic Games Impact & Legacy noted, London 2012 was the first to measure the full carbon footprint, followed by Rio, indicating a growing emphasis on comprehensive environmental accountability.

It is important to note that the London 2012 Head of Sustainability was involved with the Olympic Games project from the bidding committee's formation, enabling him to implement their initial plans and proposals after London was selected as host city. He stated that *"Sustainability was not really a requirement from the IOC. The candidature requirements had one chapter called 'Environment and meteorology' but no other requirements on economical and societal impacts."* The London bid team strategically positioned sustainability as a competitive advantage during the candidature process and incorporated it into their plans to secure support from domestic stakeholders. Their comprehensive approach included both sustainability and legacy planning.

Two distinctive and major projects which included sustainability and legacy objectives were highlighted by the expert:

1. **The creation of the Olympic Park:** The Olympic Park was built on a brownfield site to welcome various venues and competitions during the 2012 Games and is still in use by locals today. Concerts, festivals, educational programs, and other events are still being organised regularly. The London 2012 Organising Committee managed to provide measurements and numbers regarding its sustainable achievements as follows:
 - **Efficient design:** The design of the venues and infrastructure aimed to reduce the use of concrete and other materials, leading to further savings of 20,000 metric

tons of embodied carbon (Department for Environment, Food and Rural Affairs, 2013).

- **Carbon savings:** 400,000 metric tons of CO₂ equivalent saved thanks to renewable energy sources, such as micro-wind turbines, that were installed in the Park.
- **Waste management:** 99% of waste from installing and decommissioning venues reused or recycled.
- **Transportation:** 86% of visitors travelled by rail (London Organising Committee of the Olympic Games and Paralympic Games, 2012).

Other sustainable plans for the Olympic Park were implemented, allowing the local community to perpetuate the spirit of the Olympic Games. The London Legacy Development Corporation (LLDC) continues to work on various projects to ensure the Olympic Park remains a vibrant and sustainable destination for living, working, and recreation.

2. **The development of methodologies and standards:** The ISO 20121 certification was developed thanks to this specific Games edition. It provides an international standard for sustainable event management, helping organisations to systematically address sustainability issues with respect to events management and organisation. The ISO 20121 provided a framework for managing sustainability throughout the event lifecycle, from planning to execution and post-event activities, and covers various aspects of event management, including environmental, social, and economic impacts. The benefits of this certification have become a practical tool applicable to the event sector worldwide (London Organising Committee of the Olympic Games and Paralympic Games, 2012).

The adoption of ISO 20121 by London 2012 set a benchmark for sustainable event management, demonstrating how large-scale events can be conducted responsibly and sustainably. The London 2012 Executive mentioned: *“Rio and Tokyo both followed the standard and were certified to it. Interestingly, Paris 2024 took it to the next level that it*

became a revised version.” In other words, the ISO 20121 became a part of the London 2012 Legacy.

Key challenges and lessons learned

London 2012 counts many other successful and sustainable projects which for most of them turned into lasting legacy plans. However, successes come with challenges as well. So, what aspects of the sustainable legacy from London 2012 could have been better implemented?

Three key challenges were raised by the expert:

- 1. Timing of legacy planning:** The LLDC had been formed three years before the Games, which according to the expert, was beneficial but not sufficient. *“Proper legacy planning should start from the outset of the project”.*
- 2. Knowledge transfer and post-games transition:** There was a lack of appreciation at senior levels for tools like carbon foot printing and sustainable sourcing management systems. *“If people were more aware about the use of what an OCOG can do and channel that into post-Games initiatives, the government and sports authorities could have adopted the sourcing code almost entirely and adapted it for their purposes, but a lot of stuff gets dropped.”* These tools were implemented despite the lack of recognition of their importance for legacy. This lack of appreciation can lead to making the transition after the Games difficult to manage. *“Many people leave immediately after the Games, leaving only a small team to do the reporting and sort out everything and get rid of the assets”.*
- 3. Lack of communication between Organising Committees:** There is insufficient communication and collaboration between different OCOGs of various Olympic Games. This lack of sharing of knowledge and best practice hampers the continuity and improvement of sustainability efforts. Different cultures and languages can create barriers between OCOGs, which doesn’t facilitate communication.

Thanks to its successes and challenges, the London 2012 Head of Sustainability highlighted a few lessons learned such as:

1. **Early legacy planning:** Legacy planning should begin as early as possible, ideally from the start of the project, to ensure long-term benefits.
2. **Integration of Sustainability tools:** Greater appreciation for sustainability tools at senior levels could enhance their integration into post-Games initiatives and allow sports authorities and governments to adopt the sourcing code and other sustainability practices developed during the Games for their purposes.
3. **Managing post-Games transition:** Effective strategies are needed to manage the transition period after the Games, ensuring continuity and proper handling of assets and reporting.
4. **Improved communication:** There should be better communication and collaboration between different OCOGs to share knowledge, experiences, and best practices, enhancing overall sustainability efforts.

Overall, the London 2012 Olympic Games enjoyed a relatively successful sustainable journey filled with many legacy plans that remain active and part of communities still today. The combination of the questionnaire and the transcript provides a comprehensive view of the sustainability efforts and legacies of the London 2012 Olympic Games. Key takeaways include the importance of early and continuous planning and the adoption of sustainability standards. Having been part of the bidding phase until the closing phase of the Games, the London 2012 Head of Sustainability proves that the role has a significant impact on the success of the Games in all aspects. These insights can inform future Olympic Games and help ensure their long-term sustainability.

Rio 2016

Legacy has no time limit

The interview conducted on Rio 2016 dispelled numerous misconceptions and misinterpretations held by the general public. While Boykoff and Mascarenhas (2016) characterized the Rio 2016 Olympics as the least sustainable in their literature review, the Rio 2016 Head of Sustainability and current IOC Head of Olympic Games Impact and Legacy demonstrated that despite the economic downturns, political instability, and the Zika virus outbreak, the OCOG successfully implemented sustainable measures and strong legacy initiatives.

Unlike London 2012 or Paris 2024, Rio 2016 lacked a robust sustainability foundation during the 2009 bidding process. It wasn't until 2013 that its sustainability strategy was strengthened following the OCOG's formation. The Rio 2016 Head of Sustainability explained that *"an important challenge with sustainability in Rio was to move from what they call the very opportunistic and marketeer view from the candidature project to get an actual sustainability management plan"*. As a result, they created the Sustainable Management Plan (SMP) in collaboration with the city of Rio, focusing on realistic goals rather than attempting to solve all environmental problems of the metropolitan area: *"That really established goals in a much more ambitious, yet realistic way compared to the candidature project"*.

The SMP is a comprehensive framework that integrates sustainability into every aspect of the Rio 2016 Games, ensuring that the event leaves a positive legacy for the city and its residents. It was built around three strategic objectives named at the time **Planet** (environment), **People** (social) and **Prosperity** (economic), unfolding into nine action streams including: waste management, engagement and awareness, universal accessibility, diversity and inclusion, transport and logistics, sustainable design and construction, environmental conservation and restoration, sustainable supply chain, and accountability and responsible management. Through these streams, Rio 2016 implemented a robust measurement and reporting system to track progress and ensure accountability. The Sustainability

Management System (SMS) was based on ISO 20121 (pioneered by London 2012), while a carbon management system was established to minimize emissions. Water management and biodiversity conservation were also central to Rio 2016's sustainability strategy (Rio 2016 Organising Committee, 2014).

Outcomes of the Rio 2016 sustainability strategy and legacy plans

Through the implementation of the SMP, Rio 2016 established a sustainable legacy despite significant challenges, including political instability, economic downturns, and the Zika virus outbreak that diverted attention and resources from sustainability efforts. This raises two important questions: *"What are the sustainable legacies from the Rio 2016 Games?"* and *"Has there been any monitoring or measurement of sustainability efforts from the Rio 2016 Games?"*.

Rio 2016 made substantial efforts toward reducing its carbon footprint and restoring natural areas affected by construction. Before Rio's selection as host city, only 11% of the city's wastewater was treated. Thanks to measures implemented by the time of the Games, approximately 16% of these waters were being treated which was a significant improvement in just a few years.

The expert highlighted the particular focus on supply chain sustainability. *"This aspect was the most successful part of our sustainability efforts. Specifically, our work with the supply chain yielded lasting results, even after the Games concluded. For instance, 38% of the contracts were awarded to small and medium-sized enterprises (SMEs). In addition to this, we implemented a program improving the competitiveness of small companies within the event supply chain. This initiative has continued to evolve over time. We also incorporated lessons learned from previous events, such as the London and Vancouver games, which provided valuable insights. The collaboration with Vancouver 2010, in particular, offered some excellent learnings from the Canadian experience"*.

To measure the impact of sustainability actions, Rio 2016 utilised the international measurement standard known as Global Reporting Initiative (GRI). This framework provides comprehensive

guidelines for sustainability reporting, helping organisations consistently and credibly disclose their economic, environmental, and social impacts (Rio 2016 Organising Committee, 2016).

- The Rio 2016 Head of Sustainability identified several sustainable legacies: **Sport development in Brazil:** *"The development of sport in the country was a shared responsibility between the National Olympic Committee in Brazil and the Ministry of Sport at the national level. This initiative was implemented even before the Games took place, ensuring that the sport development aspect was fully established. During the preparation years for the Games, the National Olympic Committee organised school games to support talent identification and create competition opportunities from the grassroots level. This was a crucial part of sport development. Additionally, Olympic training centres, which did not exist in Brazil before, were developed. All these efforts were connected and completed before the Games".*
- **Use of new sports infrastructure:** This legacy directly connects to the construction of new sports facilities for local communities. Rio developed a legacy plan that the city was responsible for implementing. However, political turmoil delayed implementation after the Games. It took eight years for Rio to complete their legacy plans. As the expert noted: *"If you go there today, everything is implemented as per the initial points for Rio 2016".*

Key challenges and lessons learned

As previously noted, a primary challenge for Rio 2016 was transitioning from ambitious candidature proposals to realistic sustainability planning. Although Rio targeted an 80% reduction in carbon emissions, they achieved a 16% reduction. The Rio 2016 Head of Sustainability stated, *"There was a good reduction in operation and construction, but the most important was the emissions made by travellers and this is a solution that even today we don't have".* Nevertheless, the OCOG successfully developed and implemented concrete measurements for its sustainability strategy and plans.

Political instability and economic downturns considerably affected the implementation of Rio 2016's legacy plans. External factors significantly impact the organisation of the Olympic Games. Rio 2016

demonstrates an important lesson: even when an OCOG establishes post-Games legacy plans intended for near-term implementation, execution may require much longer, in this case, eight years.

A crucial lesson for future Olympic Games editions is the importance of realistic planning and establishing achievable goals during the bidding phase. This approach can prevent wasted time and unrealistic promises, as the expert explained: *"In the first half of 2012, we produced a sustainability management plan that didn't have a fancy name. We wanted to move away from market-driven greenwashing and look at what the Games could realistically achieve in a more serious and effective way. Instead of positioning the Games as a solution to all the environmental problems of the Rio metropolitan area, we recognized that one event could not solve decades of underinvestment in public sanitation. We needed to start by realistically assessing everything that had been envisioned in the candidature and determine the actual acceleration effect the Games could have on sustainability in the metropolitan region. We focused on what the Olympic Games needed to do to make the Games themselves sustainable in terms of operations, construction, and impact".*

Paris 2024

The Games of a new Era

Paris 2024 has become the benchmark for sustainable Games and legacy planning. This Games edition was the first conducted under the *"IOC Games in a New Era"* process, where sustainability plays a crucial role in selecting the Elected Host (formerly called Host City). However, interviews revealed that the bid committee had already established a clear vision that placed sustainability and legacy at the core of its project. As was the case for London 2012, some of the Paris 2024 executives were already involved in the bidding phase of the project.

The Chair of the Paris 2024 Coordination Commission noted that Paris did not base its sustainability strategy on the SDGs. Nevertheless, according to the post-Games sustainability report (Paris 2024 Organising Committee, 2024), Paris 2024 drew upon existing framework agreements and initiatives at national and international levels from the bid phase onward. These guided the Organising Committee's roadmap and commitments toward hosting more responsible Games.

Although Paris 2024 successfully implemented and achieved high sustainability goals, it is important to highlight the main challenges identified by the expert:

- **Balancing costs and sustainability:** Implementing sustainability measures often conflicted with budget constraints and practical realities. For example, the decision to use 100% green energy required significant investment and coordination with electricity providers. As mentioned by the Chair, *"There was this decision to work with 100% green energy. This meant that Paris 2024 was determined to avoid using diesel generators in the stadiums. To be consistent with the vision and strategy, Paris 2024 was determined to work with electricity suppliers to create matrices for electricity supply, ensuring that if a major storm caused a power outage, another source could immediately take over. However, they encountered resistance from Olympic Broadcast Services (OBS) who said that they could not take that risk because they had never worked this way before. So, ultimately, for some of the most iconic*

locations like the opening ceremony or the Stade de France, it was necessary to add some generators, which were not in line with the original plan. This caused deep conflicts because, although I am summarizing this in two minutes, it involved months of discussions and tensions".

- **Catering and dietary preferences:** The strategy to provide low-carbon meals with reduced animal protein faced resistance from athletes accustomed to high-protein diets. This cultural difference required adjustments in the food supply chain that proved difficult to implement quickly. *"Another example that struck me was the goal to serve 13 million meals, including over a million at the Village, with a low-carbon strategy that significantly reduced animal protein. Of course, using short supply chains from farm to fork, is excellent. However, the implementation by Sodexo², which involved simply reducing the amount and variety of meat in the Village's food service, did not go over well with the athletes. Most of them, in preparation for their competitions, were used to consuming a lot of meat and animal protein. In France, Belgium, and perhaps other countries, people are eating less meat, and even athletes might be following this trend. But in the United States, Latin America, Africa, and certainly in Central and Southeastern Europe, people continue to eat much more meat than we do. So, when athletes arrived at the Village, adjustments had to be made, which was not easy. It required reworking the entire supply chain, which could not be done overnight. This created tensions, and the beautiful vision was somewhat undermined by reality".*
- **Cleaning the Seine River:** The project to make the Seine River swimmable again was highly visible and symbolic but also costly and complex. *"It required significant investment and coordination among various stakeholders. It was a very strong project in terms of communication and very significant for Parisians, but I think it had less impact on daily life and*

² Sodexo is a French food services and facilities management company founded in 1966. Sodexo was responsible for implementing the low-carbon meal strategy at the Athletes' Village during the Paris 2024 Games. This involved reducing the amount and variety of meat served, which faced resistance from athletes accustomed to high-protein diets. Sodexo Switzerland – Partner for Integrated Facility Management

on innovative and technological solutions that could be used by others in France and elsewhere. Because, well, the Seine is the Seine, and it is very specific to Paris. But it was certainly an important, visible project that cost a lot of money, but the Games made it possible, and so there you have the useful aspect" explained the expert.

Paris 2024 occasionally had to scale back certain objectives compared to their initial ambitions. This reflects the challenges associated with political discourse, which was often theoretical and not always aligned with the realities faced by people on the ground and businesses.

Main sustainability projects and successes for Paris 2024

Despite several challenges encountered by Paris 2024, the OCOG achieved remarkable sustainability efforts, including:

- **Carbon reduction:** Paris 2024 committed to halving emissions compared to previous Games. This involved establishing a target carbon footprint and implementing measures to avoid, reduce, and offset emissions. As noted by the IOC former Head of Sustainability, *"The OCOG managed to reduce its carbon emissions by 54%"*. This carbon reduction significantly exceeded what London 2012 achieved.
- **Use of 95% existing or temporary venues:** To comply with IOC requirements and minimize carbon emissions, the Chair of the Paris 2024 Coordination Commission emphasized that *"the idea of using 95% existing or temporary infrastructure and limiting new construction to what was absolutely necessary, which mainly included the Olympic Village and the Aquatic Centre. Additionally, there was the construction of the Marina in Marseille, which is now the National Sailing Centre"*. He further noted that some of the constructed sites had already been planned by the city of Paris, making them both necessary and useful.
- **Inclusion and equality:** Paris 2024 prioritized social sustainability by incorporating numerous small and medium-sized enterprises (SMEs) and social economy organisations in the Games. The Social Charter exemplifies Paris 2024's commitment to social responsibility, including the

integration of vulnerable groups and ensuring fair working conditions. The expert stated that *"Before and during the preparation of the Games, through the types of companies that had the opportunity to work on the Games, a very large percentage were small and medium-sized enterprises, and companies from the social solidarity sector. [...] I also found it important to talk about inclusion, equal opportunities, and the development of social projects that Paris undertook not only before but also through its €50 million endowment fund. This fund, supported by others, allowed the launch of over 1,400 projects by non-profit organisations and others, which will last and be sustainable"*.

The sustainability strategy of Paris 2024 was closely integrated with the legacy plans developed by the OCOG. Paris 2024 established, as part of their initial organisational structure, a dedicated Legacy Department, Sustainability Department, and Legacy champions within each functional area and venue. This approach enabled effective implementation and monitoring of legacy projects, such as:

- **Second-life of infrastructure and furniture/materials:** The Olympic Village has now been repurposed into residential and commercial spaces, demonstrating the continued use of sustainable infrastructure and the ongoing impact of social projects. Furniture from the Village (desks, beds, etc.) was donated to charities for reuse. As noted by the former IOC Head of Sustainability: *"80% of materials and resources are planned to be given a second life, contributing to sustainability goals"*.
- **Swimming in the Seine River:** As previously mentioned, the Seine River served as a specific competition venue for athletes. Paris plans to reopen certain sections of the Seine for public use during summer months. **Funding grassroots projects and promoting sports on a national basis:** Paris 2024 established the first-ever Olympic legacy-focused investment fund, Impact 2024, to finance projects promoting health, well-being, education, inclusion, equality, and environmental improvements. With €47 million distributed, the endowment fund has

supported more than 1,100 grassroots projects (International Olympic Committee, 2024). According to the London 2012 Head of Sustainability, *"the fact that Mrs Marie Barsacq, Chief of Impact and Legacy for Paris 2024, continued from the bid straight into the OCOG and was in charge of that from the beginning was a very important thing and even more now that she has become the French Minister of Sport"*.

In conclusion, Paris 2024 implemented various initiatives designed to create lasting legacies. A clear distinction can be made between tangible and intangible legacies, both of significant importance. Ensuring the continuation of these projects beyond the Games required meticulous planning and multi-stakeholder engagement. The Future Olympic Games Hosts Associate Director observed that *"Paris 2024 sets new standards in sustainability, serving as a role model for future Games with its comprehensive approach across all sustainability dimensions"*.

Los Angeles 2028

In 2017, the IOC made an unprecedented decision to award two Olympic Games simultaneously through a double election. Both Paris and Los Angeles presented exceptional bids for the 2024 Olympic Games. Rather than selecting just one city and potentially losing the other strong proposal, the IOC opted for a dual award. Paris received the 2024 Olympic Games while Los Angeles was granted the 2028 Olympic Games. With Paris 2024 now complete, attention has shifted to LA28, with particular emphasis on its sustainability and legacy planning.

Road to a promising sustainability strategy

Experts who have been interviewed about LA28's sustainability approach have provided insights into the OCOG's sustainability strategy. According to the Vice Chair of the Los Angeles 2028 Coordination Commission, the aim of LA28 is to *"focus on reducing its carbon footprint and leveraging existing infrastructure"*. To achieve this goal, the main projects are as follows:

- **Zero new venues:** The OCOG is planning on utilising 100% of existing sports venues instead of constructing new ones, as initially planned in their candidature file.
- **Car-free Games:** As mentioned by the member of the Los Angeles 2028 Coordination Commission: *"LA28 aims to be a "no-car" Games, focusing on public transportation and active mobility options to reduce emissions. Investments are being made in expanded rail networks, electrified buses, and pedestrian-friendly infrastructure to encourage transit use over private vehicles, including 3,000 new electric buses to encourage sustainable mobility"*.
- **Technology & innovation:** Smart grid energy systems, AI-driven resource optimisation, and data-driven sustainability tracking should be implemented to prevent potential natural disasters (meteorological disasters such as wildfires, etc.) and to optimize resource use. The member of the Los Angeles 2028 Coordination Commission enumerated the following technological focus areas: *"Smart public transit systems, featuring electrified and autonomous buses, green building upgrades for existing venues to enhance energy efficiency, air quality*

monitoring to minimize pollution exposure for athletes and spectators and digital ticketing and crowd management technologies to reduce waste and improve efficiency".

- **Community engagement:** LA28 is prioritizing community engagement by involving local businesses, transportation agencies, and environmental groups. There is a strong focus on equity and accessibility, ensuring that sustainability benefits extend to underserved communities. Public awareness campaigns will encourage residents to use public transit and adopt eco-friendly practices during and after the Games. LA28 has been through several recent uncertainties, which might have delayed their legacy projects as not many were raised during the different interviews. As already exposed above, Rio 2016 went through political downturns and therefore took longer to implement their legacy initiatives. LA28 might also have encountered some difficulties in this respect due to current geopolitical issues. However, there is one legacy initiative that LA28 is focusing on, which is the *"public transport expansions and urban greening projects that are designed to provide lasting benefits for LA residents. The improvements in mass transit, cycling lanes, and pedestrian infrastructure are expected to reduce air pollution and traffic congestion beyond 2028. Organisers are also working with local policymakers to ensure that these sustainability measures continue long after the Games conclude"*, as raised by the expert.

LA28 has not yet released detailed updates regarding progress on its sustainability strategy implementation. It would be beneficial to conduct a more comprehensive analysis once an official sustainability report or status update becomes available from the OCOG.

Brisbane 2032

Early stages of a structured sustainability and legacy strategy

Brisbane 2032 was selected in 2020 in Tokyo during the COVID pandemic as part of the "Games in a New Era" process, similar to Paris 2024 and LA 28. This future Games edition has time to establish plans and explore innovative approaches. Currently, Brisbane 2032 is in the early stages of developing its various strategic frameworks.

As highlighted by the Brisbane 2032 Chief Impact Officer: *"We are in the early phase and as you know, we are required to produce an integrated sustainability, impact, and legacy strategy. What we consider is that the government partners really took great control and interest in a legacy strategy, and they created Elevate 2042"* which was released in 2023.

Elevate 2042 serves as the legacy strategy for the Brisbane 2032 Olympic and Paralympic Games. It embodies a collaborative 20-year vision aimed at creating enduring benefits from the Games, with a particular focus on regional transformation through sport. Developed through joint efforts of the Games Delivery Partners, the strategy intends to catalyse meaningful social, economic, environmental, and connectivity improvements (Queensland Government, 2023).

It should be noted that the OCOG is independently developing additional strategic frameworks, including a Human Rights Framework and Reconciliation Action Plan (RAP). The expert proceeded to outline the following key sustainability plans:

- **Integrated sustainability, impact, and legacy strategy:** Brisbane 2032 is required to produce this strategy, in co-creation with government partners. The Queensland Government led the creation of the Elevate 2042, which outlines the legacy strategy for the next 20 years. According to the Elevate 2042 (2024) document, the OCOG aims to deliver **low carbon Games** by accelerating the transition to renewable energy sources, implementing best practice **circular economy** principles to reduce waste and promote resource recovery, and developing

green infrastructure with high environmental standards, including green building certifications.

- **Human Rights framework:** The Brisbane 2032 Chief Impact Officer highlights that *"this framework is one of the first strategies developed" which, focusing on environmental and social sustainability*". This framework outlines strategies to ensure the protection and advancement of human rights in the context of the Brisbane 2032 Olympic and Paralympic Games, focusing on four thematic areas such as **Equality and Non-discrimination, Safety and Wellbeing, Livelihood and decent work** and finally **Privacy**. The objectives of these areas are to emphasize engagement, focus on inclusion, protect physical, intellectual and psychological rights and prevent unfair treatment or harassment. The key beneficiaries of this framework are the athletes and their entourage, staff, Indigenous People, local communities impacted by the Games, spectators and fans, and other groups as well. This Human Rights framework has a clear roadmap for immediate actions (to date) and medium to long-term actions (2026 onwards). Lastly, management systems and controls will help assess the different objectives (Brisbane 2032 Olympic and Paralympic Games Organising Committee, 2024).
- **Reconciliation Action Plan (RAP):** Published in May 2025, the RAP is Brisbane 2032's first formal step in its reconciliation journey, aiming to build respectful relationships and create meaningful opportunities for Aboriginal and Torres Strait Islander peoples. The plan aligns with the Olympic and Paralympic values of unity, inclusion, and respect, and is embedded in **Elevate 2042** (Brisbane Organising Committee for the 2032 Olympic and Paralympic Games, 2025).
- **Local solutions by emphasizing local innovative solutions and industry buy-in:** Brisbane 2032 has the intention to work with local companies with regard to technology, innovations and for sustainability matters such as carbon emissions. The expert mentions that: *"We want everyone to understand what we are doing and why we are doing it. Transparency is key. We*

are discussing how to get co-contributions from sponsors, and everyone involved, including airlines. I cannot say we have an engagement plan at the moment, but we know we cannot do it alone. We need to be clear about our goals, communicate them, and have industry and champions working with us". The OCOG will probably also communicate specific targets to its partners in terms of budget for infrastructure and other big projects, as Paris 2024 did. Brisbane 2032 also works closely with the Government: *"We have stakeholders we directly control and those we influence. We want to positively influence the government, which is building venues needed for the community, not just for the Games. This is an important narrative that people often misunderstand".*

- **Legacy strategy and Government leadership:** Brisbane 2032 has made great efforts on the consideration of past Games editions. Learnings were made from Paris 2024 during the Observers Programme organised by the IOC during the Paris 2024 Games, from London 2012 thanks to knowledgeable experts, etc. To ensure long-term impact and significant legacy, Brisbane 2032 works closely with the Queensland Government through the Games Independent Infrastructure and Coordination Authority (GIICA). The authority is responsible for driving the venues and ensuring long-term impact. As previously mentioned, the **Elevate 2042 Legacy Strategy** outlines a comprehensive plan to leverage the Brisbane 2032 Games to create lasting benefits for the region. The strategy is built around four main transformation themes, each with specific focus areas and desired outcomes:

1. **Sport, Health, and Inclusion:** Aiming at enhancing physical activity, sports participation, health, wellbeing, and social inclusion by promoting lifelong participation in sport and physical activity, high performance sports system by developing pathways for athletes, coaches, officials, and volunteers and **equity in sports participation by** increasing opportunities for underrepresented groups, including people with disabilities and Indigenous Peoples.

2. **Connecting people and places:** Aiming at **improving transport connectivity and create inclusive**, accessible places and precincts. The focus areas of this subject are to enhance transport networks and public transport services to connect the South East Queensland region and celebrating First Nations cultures, languages, and stories in the Games experience.
3. **A better future for the environment:** By advancing sustainability, protect ecosystems, and promote renewable energy. To do so, the four initiatives have been chosen: **caring for “Country Together”** by integrating traditional wisdom with modern science for land and water management, **maximizing sustainability benefits** by implementing circular economy principles and showcase sustainability in Games infrastructure, **protecting and regenerating habitat and biodiversity** by enhancing natural habitats and promote nature-based solutions and finally **accelerating the transition to renewable energy** by supporting clean energy initiatives and reduce carbon emissions.
4. **Economy of the future:** Foster innovation, create jobs, and support local businesses. **Advancing Global Image and Identity** by enhancing the region's brand and global recognition, **growing local and small businesses, encouraging innovation and future jobs** by developing new industries and technologies and **fostering Arts, Culture, and Creativity** are the focus areas.

Brisbane 2032 plays a central role in the implementation of the Elevate 2042 Legacy Strategy. Their involvement includes:

- **Governance and coordination:** Leading the development and execution of the legacy plans in collaboration with various stakeholders, including government bodies, local councils, and community organisations.

- **Community engagement:** Facilitating ongoing consultation with communities to ensure the legacy initiatives reflect their needs and aspirations.
- **Monitoring and reporting:** Establishing mechanisms to track progress and measure the impact of legacy projects, ensuring transparency and accountability.
- **Partnerships:** Working with industry partners, sponsors, and other stakeholders to secure co-contributions and support for legacy initiatives.

These initiatives are designed to ensure that the legacy of the Brisbane 2032 Games contributes to a sustainable and inclusive future for the region, including for local communities and stakeholders.

One of the main challenges that Brisbane 2032 will face, as highlighted by the Olympic Games Executive Director, will be managing the CO₂ emissions generated by Games operations: *“When it comes to the environment, the IOC is going to continue being much more demanding about CO₂. Today, we have targets that are defined in relation to the previous Games, and we are going to become increasingly precise in how we measure things. The central questions that will arise for me, in terms of emissions, will already come up with Brisbane. Who will be responsible for offsetting the emissions? Will it be an individual responsibility? Or, on the contrary, will it be a systemic responsibility that the organizers will look after, with the associated costs? In any case, I think the major criticism associated with any event that brings people together, in one place at one time, is that you inevitably generate emissions, whatever the case may be. So how do we offset them? How do we go beyond just offsetting? Systemic responsibility versus individual responsibility”.*

These questions will need to be addressed in the near future to ensure the continuity of the Games. Incorporating technology may be essential to developing effective solutions.

Data collection overall summary

Sustainability and Legacy engagements	
Planning and implementation	
London 2012	<ul style="list-style-type: none"> ○ Resource management: Several Executives involved from the bid committee's formation, enabling the implementation of initial plans and proposals ○ Strategic positioning of sustainability: Used as a competitive advantage during the candidature process to secure support from domestic stakeholders ○ Sustainability approach: The sustainability plans were at the heart of the planning phase and therefore implemented more efficiently, including legacy planning
Rio 2016	<ul style="list-style-type: none"> ○ Strategic positioning of sustainability: Strengthened in 2013 with the creation of the Sustainable Management Plan (SMP) in collaboration with the city of Rio, a few years after the OCOG's formation. Use of ISO 20121, with a carbon management system to minimize emissions ○ Sustainability approach: Focused on Planet (environment), People (social), and Prosperity (economic), with nine action streams including waste management, engagement and awareness, universal accessibility, diversity and inclusion, transport and logistics, sustainable design and construction, environmental conservation and restoration, sustainable supply chain, and accountability and responsible management
Paris 2024	<ul style="list-style-type: none"> ○ Resource management: As for London 2012, key actors of the organisation of the Paris 2024 Games were part of the bid committee. They also established a clear vision placing sustainability and legacy at the core of the project from the bid phase ○ OCOG formation and legacy impact: Established Legacy department, Sustainability department, and Legacy champions within each functional area and venue. The former Executive Director of Impact and Legacy became French Sports Minister not long after the Games ○ Framework agreements: Drew upon existing national and international framework agreements and initiatives to guide the Organising Committee's roadmap and commitments
Los Angeles 2028	<ul style="list-style-type: none"> ● Strategic positioning of sustainability: LA28 has decided to utilize 100% of existing sports venues instead of constructing new ones. A focus on public transportation and active mobility options is also at the heart of the OCOG's plans, including investments in expanded rail networks, electrified buses, and pedestrian-friendly infrastructure ● Technology and innovation: Implementing smart grid energy systems, AI-driven resource optimization, and data-driven sustainability tracking to optimize resource use and prevent potential natural disasters

Brisbane 2032	<ul style="list-style-type: none"> • Strategic positioning of sustainability: The Brisbane 2032 sustainability and legacy strategy is being planned in co-creation with government partners, led by the Queensland Government through the Elevate 2042 strategy. Several frameworks and plans are integrated into the strategy, such as the Human Rights Framework and the Reconciliation Action Plan (RAP): Important from a First Nations perspective, aligning with different stages of Brisbane 2032's sustainability and impact strategy • Local solutions and industry buy-in: One of Brisbane 2032's objectives is to involve local companies and work on innovative solutions and to engage local industries • Community engagement and partnerships: Facilitating ongoing consultation with communities to ensure legacy initiatives reflect their needs and aspirations is integral part of Brisbane legacy initiatives. Working with industry partners, sponsors, and other stakeholders to secure co-contributions and support for legacy initiatives
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Sustainability achievements	
London 2012	<ul style="list-style-type: none"> ○ Olympic Park creation: Built on a brownfield site, hosting various events and activities for the local community ○ Efficient design: Reduced use of concrete, saving 20,000 tonnes of embodied carbon ○ Carbon savings: 400,000 tonnes of CO₂ equivalent saved through renewable energy sources ○ Waste management: 99% of waste from venue installation and decommissioning reused or recycled ○ Transportation: 86% of visitors who came to the London 2012 Games travelled by rail ○ ISO 20121 certification: Developed for sustainable event management, providing a framework for managing sustainability throughout the event lifecycle
Rio 2016	<ul style="list-style-type: none"> ○ Wastewater treatment: Increased from 11% to 16% of the city's wastewater being treated ○ Supply chain sustainability: 38% of contracts awarded to SMEs, with programs to improve competitiveness of small companies within the event supply chain ○ Measurement and reporting: Utilized Global Reporting Initiative (GRI) for sustainability reporting ○ Sport development: Initiatives by the National Olympic Committee and Ministry of Sport, including school games and Olympic training centres

Paris 2024	<ul style="list-style-type: none"> ○ Carbon reduction: Committed to halving emissions compared to previous Games, achieving a 54% reduction ○ Green energy: Worked with electricity suppliers to ensure 100% green energy, avoiding diesel generators where possible ○ Cleaning the Seine River: Made the Seine river swimmable again, a highly visible and symbolic project ○ Low-carbon meals: Strategy to provide low-carbon meals with reduced animal protein, using short supply chains from farm to fork
Los Angeles 2028	<ul style="list-style-type: none"> ○ Public transport expansions and urban greening: Designed to provide lasting benefits for LA residents, including improvements in mass transit, cycling lanes, and pedestrian infrastructure ○ Community engagement: Involving local businesses, transportation agencies, and environmental groups, with a focus on equity and accessibility ○ Smart public transit systems: Featuring electrified and autonomous buses, green building upgrades, air quality monitoring, and digital ticketing and crowd management technologies
Brisbane 2032	<ul style="list-style-type: none"> ○ Low carbon Games: Accelerating the transition to renewable energy sources, implementing circular economy principles, and developing green infrastructure with high environmental standards ○ Community engagement: Involving local businesses, transportation agencies, and environmental groups, with a focus on equity and accessibility ○ Legacy strategy and Government leadership: Working closely with the Queensland Government through the Games Independent Infrastructure and Coordination Authority (GIICA) to ensure long-term impact ○ Elevate 2042 legacy strategy: Built around four main transformation themes: <ul style="list-style-type: none"> • Sport, health, and inclusion: Enhancing physical activity, sports participation, health, wellbeing, and social inclusion • Connecting people and places: Improving transport connectivity and creating inclusive, accessible places and precincts • A better future for the environment: Advancing sustainability, protecting ecosystems, and promoting renewable energy • Economy of the future: Fostering innovation, creating jobs, and supporting local businesses

Challenges and lessons learned	
London 2012	<ul style="list-style-type: none"> ○ Timing of legacy planning: Formed three years before the Games, but ideally should start from the outset of the project. It should begin as early as possible to ensure long-term benefits ○ Knowledge transfer and post-Games transition: Lack of appreciation at senior levels for sustainability tools, making post-Games transition difficult. Greater appreciation at senior levels could have enhanced sustainability tools integration into post-Games initiatives ○ Communication between OCOGs: Insufficient communication and collaboration between different OCOGs, hampering continuity and improvement of sustainability efforts ○ Managing post-Games transition: Effective strategies needed for continuity and proper handling of assets and reporting
Rio 2016	<ul style="list-style-type: none"> ○ Transition from candidature proposals to realistic planning: Moving from ambitious proposals to realistic sustainability management plans ○ Carbon emissions reduction: Targeted 80% reduction, achieved 16% reduction, with challenges in managing emissions from travellers ○ Political instability and economic downturns: Impact on the implementation of legacy plans, requiring eight years for completion ○ Realistic planning and achievable goals: Importance of setting realistic goals during the bidding phase to avoid wasted time and unrealistic promises ○ Post-Games legacy implementation: Execution of legacy plans may require much longer than initially intended

Paris 2024	<ul style="list-style-type: none"> ○ Balancing costs and sustainability: Conflicts between sustainability measures and budget constraints, such as the need for generators at iconic locations ○ Catering and dietary preferences: Resistance from athletes accustomed to high-protein diets, requiring adjustments in the food supply chain ○ Sponsorship and revenue generation: Initial challenges in securing sponsors and generating revenue due to the complex economic environment ○ Political discourse and practical realities: Scaling back certain objectives due to the challenges associated with political discourse and practical realities faced by people and businesses ○ Ensuring continuation of projects: Required meticulous planning and multi-stakeholder engagement to ensure the continuation of legacy projects beyond the Games
Los Angeles 2028	<ul style="list-style-type: none"> ○ Political instabilities: Potential delays in implementing legacy projects due to current geopolitical issues ○ Ensuring continuation of projects: Working with local policymakers to ensure sustainability measures continue long after the Games conclude ○ Governance issues: The OCOG went through a recent restructuration and had to re organise its resources which has also delayed some projects
Brisbane 2032	<ul style="list-style-type: none"> ○ Early phase of development: Brisbane 2032 is in the early stages of developing its various strategic frameworks ○ Transparency and engagement: Need for clear communication of goals and engagement with industry and champions ○ Learning from past Games: Consideration of past Games editions, such as Paris 2024 and London 2012, to ensure long-term impact and significant legacy ○ CO2 emissions accountability: Increasingly strict IOC targets, with growing debate over whether individual participants or the organizing system should bear responsibility for offsetting emissions at major events like Brisbane 2032

Recommendations

Based on insights from various experts, the following recommendations and action plans have been developed:

1. **Establishing independent bodies to provide third-party assurance on sustainability and legacy efforts:**
 - a. **Olympic Host Contract amendment:** Update the Olympic Host Contract to include a clause requiring the establishment of an independent third-party assurance body for sustainability and legacy monitoring. This amendment will take effect upon Host election and contract signing, following standard procedures.
 - b. **Governance framework development:** Develop a comprehensive framework that clearly defines the scope, responsibilities, and reporting standards for these independent bodies. The framework shall align with established international standards including the UN Sustainable Development Goals, ISO 20121, and GRI Standards, in accordance with the IOC Sustainability Strategy. This framework requires collaborative development and agreement between the Future Olympic Games Host unit, Ethics and Compliance department, Corporate and Sustainable Development division, and Legal department.
 - c. **Composition and expertise:** The independent body shall comprise sustainability and sports experts alongside diverse stakeholders from non-governmental organisations, educational institutions, local technology and innovation businesses, and relevant industry representatives. These members will provide specialized expertise and guidance on sustainability and legacy plans established during the bidding phase, ensuring comprehensive integration and long-term implementation effectiveness.
 - d. **Transparency and public accountability:** Promote transparency through mandatory publication of annual public reports and maintenance of open data platforms to ensure accountability and maintain public trust. The independent body may leverage

partnerships with TOP Sponsors, such as Deloitte, to enhance reporting capabilities and professional standards.

- e. **Monitoring and evaluation:** Implement continuous monitoring and evaluation of outcomes and progress regarding recommendations and measures established by the independent body in collaboration with the OCOG and other relevant authorities. This process will utilise artificial intelligence and advanced technologies to ensure comprehensive and efficient oversight.
- f. **Recognition and incentive structure:** Establish an IOC Sustainability Award to recognize OCOGs and independent bodies that demonstrate exceptional innovation and best practices in sustainability and legacy initiatives. This recognition system will encourage excellence and promote the adoption of leading practices across all Olympic Games.

2. Utilization of new technologies to achieve sustainability goals and engage stakeholders in sustainability efforts:

- a. **Technology sourcing and platform development:** OCOGs should identify their specific needs based on their sustainability strategy to effectively source technology solutions from start-ups and established companies. These solutions may include Digital Twin³ technology, augmented and virtual reality platforms, mobile application development, and Artificial Intelligence (AI) systems. The IOC should establish a centralized technology platform featuring multiple providers (such as Alibaba and other Top Sponsors specialized in technology) to facilitate OCOG partnerships. For example, AI platforms can aggregate and analyse data from various sources including transportation, energy consumption, and waste management systems. Mobile application developers should also be integrated into this IOC platform to enable OCOGs to develop their applications more efficiently. This platform should be

³ **Digital Twin:** A real-time digital replica of a physical object, system, or process used to simulate, monitor, and optimize performance throughout its lifecycle.

developed and implemented by the Technology and Information department, with content support from the Corporate and Sustainable Development department.

- b. Stakeholder engagement through digital innovation:** By implementing these technological tools, OCOGs could significantly enhance stakeholder engagement through clear, digital representations of their sustainability strategies and objectives. Developing mobile applications well in advance of the Games creates an attractive promotional tool that provides easy access to information for all (including spectators, athletes, and fans). These platforms enable comprehensive marketing and awareness campaigns focused on sustainability initiatives. This approach can also launch the OCOG's initial legacy actions, creating lasting impact beyond the Games period. The Digital Engagement and Marketing department should provide toolkits and content guidelines to ensure proper use of Olympic branding throughout these initiatives.
- c. Local technology partnership integration:** Engaging local technology companies provides access to innovative tools that can monitor and enhance OCOG sustainability strategies while delivering efficient and accurate monitoring capabilities throughout the organisation's lifecycle. These partnerships offer dual benefits: advancing sustainability objectives while supporting local economic development. Tender processes for technology partnerships should be initiated once the OCOG has established its comprehensive sustainability strategy, ensuring alignment between technological solutions and strategic objectives.

3. Fostering knowledge transfer between different OCOGs:

- a. Program enhancement and sustainability focus:** Modify and strengthen existing programs, such as the Games Insights and Learning programme⁴, by emphasizing the

⁴**Games Insights and Learning programme:** A program developed by the International Olympic Committee (IOC) to capture, manage, and transfer knowledge and best practices from past Olympic Games to future host cities, ensuring continuity, efficiency, and legacy planning

critical importance of sustainability and legacy planning. This enhancement should include comprehensive, up-to-date documentation of both positive and negative lessons learned from past Games editions, along with summaries of key findings from post-Games reports.

- b. Mandatory participation requirements:** Require all current and recent OCOG representatives (Rio 2016, Tokyo 2020, Paris 2024, and subsequent editions) to actively contribute to knowledge sharing initiatives. Brisbane 2032 could serve as the pilot OCOG to test and provide valuable feedback on the refined program. The 2036 Games and future editions would then fully benefit from this enhanced system and be required to participate as part of their Olympic Host Contract obligations.
- c. Digital Knowledge Hub implementation:** Establish a comprehensive Digital Knowledge Hub monitored by the IOC's Technology and Information department. Historical information from past OCOGs can be collected through archives and legacy entities, while current data is gathered directly from active OCOGs and relevant IOC departments. The platform should feature reports, templates, playbooks, interactive dashboards, and innovative tools, while also highlighting specific expert contributors for direct consultation.
- d. Real-time collaboration enhancement:** Enhance direct collaboration through live Q&A sessions, forums, and workshops featuring executives from past and present OCOGs. Organise structured site visits for future hosts to observe operations at past and current Games venues, allowing them to meet with experts and gain firsthand operational insights. These visits should be scheduled based on specific needs and developmental objectives.
- e. Early-stage mentorship programs:** Establish mentorship programs connecting former OCOG experts with newly formed organising committees during their early development stages. This provides a solid foundation for improving bid projects and

can be maintained long-term while linking to independent oversight bodies to ensure powerful continuity and monitoring throughout the Games lifecycle.

- f. Performance evaluation and continuous improvement:** Include knowledge transfer performance assessments in final OCOG reports, with specific feedback mechanisms to identify improvements for future Games editions. This creates a continuous improvement cycle that enhances the overall effectiveness of knowledge sharing initiatives.
- g. Framework and template provision:** Through effective knowledge transfer, the IOC can provide future OCOGs with proven frameworks and templates, preventing the need to reinvent established processes. This approach allows OCOGs to maintain their unique value proposition while building upon tested foundations and best practices from previous Games.

Conclusion

To ensure the Olympic Games remain relevant and impactful for generations to come, it is essential for the IOC to continuously strengthen its commitment to sustainability and legacy. By embedding these principles at the heart of every edition (from the candidature phase to post-Games planning), the IOC can help safeguard the long-term viability of the Games.

The evolving candidature process and the growing emphasis on sustainable legacy initiatives reflect a broader recognition that the Olympic Games must adapt to a rapidly changing world. Past, present, and future OCOGs each bring unique visions and strategies, yet all share a common responsibility: to deliver Games that leave lasting, positive impacts on host communities and the environment.

While significant progress has been made, challenges remain in ensuring that sustainability efforts translate into meaningful, long-term outcomes. The IOC plays a pivotal role in guiding and supporting OCOGs and stakeholders to go beyond minimum requirements and embrace innovative, context-specific solutions.

On the other hand, the limitations of this project are evident. Extending the research timeline would allow for more comprehensive documentation and in-depth interviews, leading to the collection of richer and more accurate data. This, in turn, would support a deeper analysis and more robust recommendations. Additionally, it is important to acknowledge that the IOC is a complex organisation, governed by formal procedures and suggesting new projects require numerous approvals. As such, the implementation of these recommendations is not guaranteed. Nevertheless, this work can serve as a starting point for introducing new ideas or refining existing tools.

In an era marked by economic uncertainty, social transformation, and global crises, from pandemics to geopolitical tensions, the resilience of the Olympic Games depends on their ability to evolve responsibly. By prioritizing sustainability and legacy, the Olympic Movement can not only preserve its values but also inspire future generations to reimagine what global sporting events can achieve.

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Appendices

Disclaimer for the use of AI

Artificial Intelligence tools were utilized as a supporting resource in this research project, specifically for research assistance and linguistic refinement. The primary AI-assisted tasks included summarizing extensive academic articles to extract core content and analysing specific textual elements from source materials. The secondary AI-assisted tasks consisted of correcting and refining the language to a more elaborated tone. It is important to note that all references and citations were manually compiled without AI assistance.

This research employed Microsoft Copilot, a platform licensed to IOC employees, ensuring that all data processing remained within the secure IOC environment, unlike public AI platforms such as ChatGPT. The AI tool was additionally used for syntactical refinement and sentence restructuring in select portions of the thesis.

Annexes of Data Collection

Questionnaire :

UN Goals:

The academic and field literature reviewed presents both positive and controversial perspectives on the necessity and position of the IOC Sustainability strategy, highlighting the various measures implemented. Understanding the application of the UN Sustainable Development Goals (SDGs) by sports organisations such as the IOC requires further details and testimonies from their executives.

According to academic sources, the UN Sustainable Development Goals (SDGs) have become the foundation for ongoing efforts to establish monitoring metrics and evaluate progress among the IOC and other entities. Here are some key questions to consider:

1. How does your organisation view the SDGs?
2. What outcomes does your organisation expect from implementing the SDGs?
3. What are the main challenges your organisation faces in implementing sustainability measures?
4. How can the selected SDGs by your organisation help ensure the future of the Olympic Games (IOC)?
5. Can you provide examples of successful sustainability initiatives led by the IOC?
6. How does your organisation address controversial perspectives on the necessity and position of the IOC Sustainability strategy?
7. How can the SDGs help ensuring the continuity of the Olympic Games?

London 2012 and Rio 2016:

The London 2012 Olympic Games set new standards for Olympic-related development by being the first to thoroughly plan for the legacy from the initial bid through the long-term regeneration of the Olympic Park in the post-Games period. However, the long-term fulfillment of these promises remains disputed. In contrast, the Rio 2016 Olympics were considered the least sustainable. Boykoff and Mascarenhas (2016)⁵ demonstrated that economic downturns, political instability, and the outbreak of the Zika virus led to the organisers' failure to meet many environmental goals, such as improving air and water quality and reducing the consumption of non-renewable resources. Additionally, Rio 2016 saw the construction of some non-ethical structures that are no longer in use.

1. According to the IOC Evaluation Commission report, the London 2012 environmental plan was based on the "Towards a One Planet Olympics" concept⁶, which aimed to create a lasting legacy for sport, the community, and the environment. Was this concept achievable at the time, and did London 2012 succeed in its goals?
2. Are you aware of any sustainable legacies from the London 2012 Games?
3. Has there been any monitoring or measurement of sustainability efforts from the London 2012 Games?
4. What aspects of the sustainable legacy from London 2012 could have been better implemented?
5. What lessons were learned from the sustainability efforts of the London 2012 Games?

According to the IOC Evaluation Commission report, Rio 2016 aimed to develop an innovative Sustainability Management Plan (SMP), integrating economic, environmental, and social elements into its "Green Games for a Blue Planet" vision⁷. However, these Games were considered among the least sustainable. Can you explain the reasons behind this assessment?

6. Are you aware of any sustainable legacies from the Rio 2016 Games?
7. Has there been any monitoring or measurement of sustainability efforts from the Rio 2016 Games?
8. What aspects of the sustainable legacy from Rio 2016 could have been better implemented?
9. What lessons were learned from the sustainability efforts of the Rio 2016 Games?
10. Overall, how have these lessons influenced current and future sustainability strategies for the Olympic Games?

⁵ Boykoff, J., & Mascarenhas, G. (2016). The Olympics, Sustainability, and Greenwashing: The Rio 2016 Summer Games. *Capitalism Nature Socialism*, 27(2), 1–11. <https://doi.org/10.1080/10455752.2016.1179473>

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Paris 2024:

1. What were the main sustainability projects to be implemented for the Paris 2024 Olympic Games?
2. How were these projects designed to achieve sustainability goals?
3. Have past Olympic Games editions been considered in developing your sustainability strategy?
4. What challenges have been encountered in implementing these sustainability projects?
5. What results have been observed so far from these sustainability initiatives?
6. What is /are the long-term sustainability legacy plans from the Paris 2024 Games?

LA 2028 and Brisbane 2032:

1. What are the key sustainability strategies planned for the Los Angeles 2028 and Brisbane 2032 Olympic Games?
2. How are these strategies being developed and implemented?
3. Have you taken into consideration any past Games editions to build your sustainability strategy?
4. What role do you see for innovation and technology in achieving sustainability goals for these future Games?
5. How do you plan to engage stakeholders and the community in the sustainability efforts for these Games?
6. What measures will be taken to ensure the continuity and long-term impact of sustainability initiatives beyond the Games?

Candidature process through the years:

Before the Games in a New Era process:

1. What were the IOC's sustainability requirements in the past?
2. When did sustainability become a more significant factor in the Olympic bidding process?
3. How were these sustainability requirements supposed to be implemented by host cities, particularly London 2012 and Rio 2016?
4. What were the expected outcomes of the sustainable plans and actions, including both positive and negative impacts?

Introduction and implementation of the Games in a New Era process:

1. What are the major differences and improvements towards sustainable requirements? What's new?

Standard questions:

1. What are the critical conditions necessary to ensure the long-term sustainability of the Olympic Games?
2. How can the balance between honoring historical legacy and embracing future innovations influence the Olympic Games' continuity?
3. What are the current sustainability implementations, and what potential future initiatives could be developed?

List of interviewed prospects:

	Date of interview	Title	Entity	Purpose of interview
1	12 December 2024	Associate Director – Future Olympic Games Hosts	IOC	IOC candidature process over the years / Sustainability and Legacy within the bidding process
2	6 March 2025	Olympic Games Executive Director	IOC	IOC candidature process over the years / Sustainability and Legacy within the bidding process
3	13 January 2025	Director – Corporate and Sustainability Development	IOC	IOC Sustainability strategy and SDGs, Paris 2024, LA 2028 Brief interview – not mentioned in project as transcript didn't function correctly
4	16 December 2024	Former IOC Head of Sustainability	IOC	IOC Sustainability strategy and SDGs, London, Rio, Paris, LA 2028 and Brisbane
5	19 February	Head of Olympic Games Impact & Legacy Rio 2016 Head of Sustainability	IOC	Rio 2016
6	20 February 2025	London 2012 Head of Sustainability Sustainability Expert	London 2012	London 2012
7	13 February 2025	IOC Vice-President Chair of the Coordination Commission for Paris 2024 Vice Chair of the Coordination Commission for Los Angeles 2028	IOC	Paris 2024 and LA 2028
8	1 April 2025	IOC Member and Memosian Coordination Commission member for Los Angeles 2028 IOC Sustainability and Legacy Commission member	IOC	LA 2028 Answers from questionnaire received by written messages
9	31 March 2025	Chief Impact and Legacy Officer		Brisbane 2032

Data Analysis grid:

Questionnaire – MEMOS Research Project		London 2012 Head of Sustainability	Rio 1026 Head of Sustainability - IOC Head of Olympic Games Impact & Legacy	Chair of the Coordination Commission for Paris 2024 Vice Chair of the Coordination Commission for Los Angeles 2028 IOC Vice-President	Former IOC Head of sustainability	Associate Director, Future Olympic Games Hosts	Olympic Games Executive Director	IOC Corporate and Sustainable Development Director	IOC Sustainability Commission Member of the LA 2028 Coordination Commission IOC Member	Brisbane 2032 Chief Impact Officer
UN SDG Goals:	1	How does your organization view the UN Sustainable Development Goals?								
	2	What outcomes does your organization expect from implementing the SDGs?								
	3	What are the main challenges your organization faces in implementing sustainability measures in relation to SDGs?								
	4	How can the selected SDGs by your organization help ensure the future of the Olympic Games (OG)?								
	5	Can you provide examples of successful sustainability initiatives led by the IOC?								
London 2012 and Rio 2016:	6	How does your organization address environmental perspectives on the necessity and position of the IOC's sustainability strategy?								
	7	How can the SDGs help ensuring the continuity of the Olympic Games?								
	8	According to the IOC Sustainability Commission report, the London 2012 environmental plan was based on the "Towards a One Planet Olympic" concept, which aimed to create a lasting legacy for the sports, the community, and the environment, with the above mentioned concept achievable at the time of the candidature phase, and did London 2012 succeed in its sustainability goals?								
	9	Are you aware of any sustainable legacies from the London 2012 Games?								
	10	Has there been any monitoring or measurement of sustainability efforts from the London 2012 Games?								

MEMOS XXVII Research Project – Manon Esposito

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MEMOS XXVII Research Project – Manon Esposito

	<p>Integration necessary to achieve planetary goals and sustainability goals.</p> <p>Carbon Footprint: Technology report estimates carbon footprint at 1.4M tonnes.</p> <p>Resilience: Olympic Games are resilient to various threats, including climate change, pandemics, and political instability, which negatively impacted Rio 2016's sustainability efforts.</p> <p>Environmental Goals: Achievement of environmental targets such as improved air and water quality and reduced non-renewable resource consumption, which were met in Rio 2016.</p> <p>Innovation and Technology: Utilization of new technologies to achieve sustainability goals and engage stakeholders in sustainability efforts.</p> <p>Community Engagement: Active participation of local communities and stakeholders in sustainability initiatives to ensure long-term impact beyond the Games.</p> <p>Learning from Past Editions: Application of lessons learned from previous Games, such as the sustainability challenges faced by Rio 2016, to improve future strategies.</p> <p>Sustainable Infrastructure: Development of ethical and sustainable structures that remain in use post-Games, avoiding the pitfalls of non-ethical constructions seen in Rio 2016.</p> <p>Transparent Reporting: Ensure transparency and accountability by measuring and disclosing the carbon footprint and other sustainability metrics, following standards set by previous successful Games.</p>	<p>Legacy Planning: Rio 2016 set the precedent for legacy planning, as demonstrated by the London 2012's approach to legacy planning and post-Games regeneration.</p> <p>Resilience: Olympic Games are resilient to various threats, including climate change, pandemics, and political instability, which negatively impacted Rio 2016's sustainability efforts.</p> <p>Environmental Goals: Achievement of environmental targets such as improved air and water quality and reduced non-renewable resource consumption, which were met in Rio 2016.</p> <p>Innovation and Technology: Utilization of new technologies to achieve sustainability goals and engage stakeholders in sustainability efforts.</p> <p>Community Engagement: Active participation of local communities and stakeholders in sustainability initiatives to ensure long-term impact beyond the Games.</p> <p>Learning from Past Editions: Application of lessons learned from previous Games, such as the sustainability challenges faced by Rio 2016, to improve future strategies.</p> <p>Sustainable Infrastructure: Development of ethical and sustainable structures that remain in use post-Games, avoiding the pitfalls of non-ethical constructions seen in Rio 2016.</p> <p>Transparent Reporting: Ensure transparency and accountability by measuring and disclosing the carbon footprint and other sustainability metrics, following standards set by previous successful Games.</p>	<p>Presidential Commitment: Essential for top-down implementation of sustainability practices.</p> <p>Organizing Committee Priority: Necessary for integrating sustainability into event planning.</p> <p>Carbon Footprint Reduction: Paris 2024 aims to cut emissions by 10% compared to previous Games.</p> <p>Sustainable Food Strategy: Implemented successfully in London to enhance sustainability.</p> <p>Legacy Creation: Ensures long-term benefits and justifies the investment in the Games.</p> <p>Stakeholder Collaboration: Critical for identifying material sustainability issues and strategies.</p> <p>Building Infrastructure Utilization: Emphasized to minimize environmental impact and costs.</p>	<p>Financial Model Evolution: The Olympic Games should aim for a financial model that values more on private funding to ensure economic sustainability, as public funds may become harder to secure in the future.</p> <p>Environmental Alignment: The Games must align with international agreements like the Paris Agreement to meet environmental sustainability targets, including clean mobility and zero emissions by 2050.</p> <p>Legacy Management: Establishing legacy foundations, as seen in cities like Salt Lake City and Vancouver, can ensure the continuation of programs and infrastructure post-Games.</p> <p>Innovation and Core Values: Each Olympic Games should innovate while maintaining core historical values, contributing to areas like gender equality, diversity, and inclusion.</p> <p>Sustainability Integration: The Games should integrate sustainability across all dimensions, including social, economic, and environmental aspects, as demonstrated by the Paris Games.</p>	<p>Sustainable Development Plan: The Games must be integrated into a long-term sustainable development plan, serving as a test for regional or national Climate Adaptability. The plan must be adjusted to adapt to changing climate conditions, preventing the repetition of the Games in certain cities at certain times.</p> <p>Factorial Risk: The Games must be sustainable according to three main pillars: environmental, social, and economic.</p> <p>Economic Impact: Measure the real economic impact of the Games to ensure that the economy of the Games remains positive, even if the budget of a organizing committee is a deficit.</p> <p>Legacy and Responsibility: Remove the responsibility for the post-Games legacy from the organizing committee to allow for more effective and sustainable management.</p>	<p>Proactive Risking Mitigation: Reduce environmental and financial costs by using pre-existing venues.</p> <p>Implement Carbon Accessibility: Develop carbon offset programs and integrate ethical construction practices.</p> <p>Address Public Transport and Mobility: Prioritize Games based on the ability to maximize public transport.</p> <p>Negative Climate Impact: Practice equal carbon reduction efforts and integrate socially into event delivery.</p> <p>Focus Post-Games Legacy Planning: Sustainability must be included in the Games to planning to maximize long-term benefits.</p>	<p>Effective Governance: Strong leadership and clear policies.</p> <p>Community Engagement: Active participation from local communities.</p> <p>Financial Resilience: Adaptive funding for sustainability projects.</p>	
What are the critical conditions necessary to ensure the long-term sustainability of the Olympic Games?	<p>Sustainability Strategy: Paris 2024 aimed to reduce sustainability impacts by 10% compared to previous Games, focusing on long-term regeneration, although its full impact remains debated.</p> <p>Innovation in Sustainability: The "Games as a New Era" process for Paris 2024 aims to enhance sustainability by learning from past editions.</p> <p>Future Strategies: Los Angeles 2028 and Brisbane 2032 are developing sustainability strategies by incorporating lessons from previous Games.</p> <p>Stakeholder Engagement: Engaging stakeholders and communities is crucial for the sustainability efforts of future Games.</p>	<p>Historical Legacy Impact: The London 2012 Olympics set new standards for legacy planning, focusing on long-term regeneration, although its full impact remains debated.</p> <p>Innovation in Sustainability: The "Games as a New Era" process for Paris 2024 aims to enhance sustainability by learning from past editions.</p> <p>Future Strategies: Los Angeles 2028 and Brisbane 2032 are developing sustainability strategies by incorporating lessons from previous Games.</p> <p>Stakeholder Engagement: Engaging stakeholders and communities is crucial for the sustainability efforts of future Games.</p>	<p>Sustainability Focus: Emphasis on reducing carbon footprint and enhancing legacy benefits for host communities.</p> <p>Historical Influence: Previous games like London 2012 and Paris 2024 set benchmarks in sustainability and legacy integration.</p> <p>Innovation Strategy: Adoption of new standards like ISO 2012 for sustainable event management.</p> <p>Leadership Role: Importance of top-down commitment to sustainability from IOC and organizing committees.</p>	<p>Historical Legacy: The Olympic Games have served to incorporate sustainability as a core value, learning from past events like the London Games, which emphasized legacy and infrastructure improvements.</p> <p>Future Innovations: Each Olympic event is expected to innovate, with recent games focusing on areas such as gender equality, diversity, and environmental sustainability.</p> <p>Sustainability Focus: The Paris Games set a high benchmark for sustainability, integrating environmental goals and circular economy principles, influencing future events to align with global sustainability targets.</p> <p>Economic Model: Future Olympic Games may need to adapt their financial models to ensure sustainability, potentially reducing reliance on taxpayer funding and increasing private investment.</p>	<p>Environmental Sustainability: The Games must adopt a holistic ethical approach, such as the transparency of funding seen in Tokyo in August 2020, requiring adjustments to core and climate adaptability.</p> <p>Proactive Legacy: The management of the Games legacy must be integrated into a permanent structure.</p> <p>Key Values: To ensure the continuity of innovation and long-term benefits.</p> <p>Game Delivery: Economic sustainability must include the overall impact of the Games on host communities, beyond the simple budget of an organizing committee.</p> <p>Social Key: The Games must promote diversity and inclusion, allowing every individual, regardless of nationality or ability, to participate and share in participating in the Olympic Games.</p>	<p>Proactive Legacy: The Games must adopt a holistic ethical approach, such as the transparency of funding seen in Tokyo in August 2020, requiring adjustments to core and climate adaptability.</p> <p>Proactive Legacy: The management of the Games legacy must be integrated into a permanent structure.</p> <p>Key Values: To ensure the continuity of innovation and long-term benefits.</p> <p>Game Delivery: Economic sustainability must include the overall impact of the Games on host communities, beyond the simple budget of an organizing committee.</p> <p>Social Key: The Games must promote diversity and inclusion, allowing every individual, regardless of nationality or ability, to participate and share in participating in the Olympic Games.</p>	<p>Proactive Legacy: The Games must adopt a holistic ethical approach, such as the transparency of funding seen in Tokyo in August 2020, requiring adjustments to core and climate adaptability.</p> <p>Proactive Legacy: The management of the Games legacy must be integrated into a permanent structure.</p> <p>Key Values: To ensure the continuity of innovation and long-term benefits.</p> <p>Game Delivery: Economic sustainability must include the overall impact of the Games on host communities, beyond the simple budget of an organizing committee.</p> <p>Social Key: The Games must promote diversity and inclusion, allowing every individual, regardless of nationality or ability, to participate and share in participating in the Olympic Games.</p>	
How can the balance between hosting historical legacy and embracing future 2024 ensure the influence the Olympic Games' continuity?								
	<p>Current sustainability implementation: The Games have been successful in reducing carbon footprint and enhancing legacy benefits, but more work is needed to ensure long-term sustainability.</p> <p>Future strategies: Los Angeles 2028 and Brisbane 2032 are developing sustainability strategies by incorporating lessons from previous Games.</p> <p>Stakeholder Engagement: Engaging stakeholders and communities is crucial for the sustainability efforts of future Games.</p>	<p>Los Angeles 2028 Sustainability Strategy: Focus on resource management and development to ensure the Olympic Games, including journey and sustain the Olympic Movement.</p> <p>Brisbane 2032 Sustainability: Objectives: Emphasis on learning from past experiences to drive improvement and ensure long-term sustainability.</p> <p>Paris 2024 Sustainability Legacy Plan: Implementation of sustainable actions and measures under the "Games as a New Era" candidate process to improve upon past Games editions' sustainability efforts.</p> <p>Rio 2016 Sustainability Management Plan: Integration of economic, environmental, and social elements into the "Games as a New Era" vision, despite being considered among the least sustainable Games.</p> <p>London 2012 Environmental Plan: Based on the "Towards a One Planet Olympics" concept aimed at creating a lasting legacy for sport, the community, and the environment.</p>	<p>Climate Change: Paris 2024 aims to cut emissions by 10% compared to the average of London and Paris.</p> <p>Chasing Balance: Making the Games accessible after the 100 years of global history.</p> <p>Los-Carha Maana: Priority given to environmental legacy.</p> <p>Sustainable Legacy: Creation of material and immaterial legacy for a positive environmental impact.</p> <p>Resilience: The Paris 2024 Games aim to be the first to be held in a city where the environment and the environment are inseparable.</p> <p>Sustainable Legacy: Achieved planning for the management of the Games legacy, including public facilities and sustainable housing legacy.</p>	<p>Sustainability Strategy Focus: Identified five key areas through stakeholder consultation, emphasizing environmental aspects.</p> <p>Carbon Management: Objective to cut carbon emissions and give 80% of materials a second life.</p> <p>Sustainable Food Strategy: Integrated into sourcing processes, transformed national standards to international IOC standards.</p> <p>Legacy and Social Aspects: Paris updated ISO standards to include legacy and social aspects, pioneering carbon footprint measurement.</p> <p>Climate Change Initiative: Developed in France to help events calculate carbon emissions, with recommendations for IOC adoption.</p> <p>Human Rights and Equality: Strategies: Integrated into the IOC sustainability strategy, focusing on gender equality, diversity, and inclusion.</p>	<p>Current Sustainability Implementation: The Paris Agreement sets targets for reducing climate impact and promoting clean mobility, aligning with global environmental goals.</p> <p>Future Initiatives: Emphasis on economic sustainability to ensure games are economically viable, potentially through increased private funding and reduced reliance on taxpayer money.</p> <p>Legacy Foundation Model: Cities like Salt Lake City and Vancouver have successfully implemented legacy foundations, largely privately funded, to sustain long-term benefits.</p> <p>Diversity and Inclusion: Future games should focus on gender equality, diversity, and inclusion, building on the progress made by previous hosts like Paris and LA.</p> <p>Remote Workforce Strategy: Reducing onsite workforce presence through remote operations, as seen in Formula One, to minimize environmental impact and logistical costs.</p>	<p>Challenge of Sustainability: Transition from a traditional model of event organization to a sustainable model, with increased emphasis on environmental protection and integration of social and economic dimensions.</p> <p>Environmental Standards: Implementing environmental standards with clear CO2 reduction goals, including the target of net-zero emissions as a baseline.</p> <p>Global Initiatives: Development of projects for the "Olympic Core" and increased requirements on CO2 emissions, with shared responsibility between athletes and organizers.</p> <p>Economic Impact: Measuring the economic impact of events, in collaboration with organizations like the IOC, to ensure financial sustainability.</p> <p>Climate Adaptability: Recognizing future climate adaptation, requiring adjustments in event organization to remain relevant.</p> <p>Event Delivery: Sustainability legacy: Integrating sustainability into all daily activities and events to ensure long-term benefits.</p> <p>Economic Impact: Measuring the true economic impact of the Games to ensure sustainability beyond the organizing committee's budget.</p> <p>Proactive Legacy: The Games must be integrated into a long-term sustainable development plan, serving regional or national ambitions.</p>	<p>Current Implementation: Human Rights Foundation, and other initiatives.</p> <p>Future Initiatives: Advanced legacy technologies, green building materials, and advanced technology projects.</p>	