



**Circular design strategies in local and regional sport organizations / *IDEATION***

# **PRACTICAL “HANDS-ON” CD STRATEGY IMPLEMENTATION TOOLKIT FOR LOCAL AND REGIONAL SPORT ORGANIZATIONS**

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## 1. Introduction

This toolkit is designed to empower local and regional sports organizations to embrace sustainability through the adoption of Circular Design principles. By integrating these strategies into their operations, organizations can minimize their environmental footprint, enhance operational efficiency, and foster community engagement while contributing to a regenerative future. Whether it's optimizing resource use, reducing waste, or rethinking infrastructure, this resource offers a roadmap to embed sustainability in the core practices of sports organizations.

This toolkit aims to empower local and regional sports organizations to transition toward sustainable practices by integrating Circular Design principles, fostering innovation, and driving measurable environmental, economic, and social benefits.

Unlike general sustainability guides, this toolkit is tailored specifically for the sports sector, addressing the unique challenges and opportunities faced by organizations at the local and regional levels. A key feature of this toolkit is the integration of the Double Diamond Design Thinking approach, a proven framework that combines creativity, collaboration, and problem-solving. This methodology ensures that sustainability strategies are practical, iterative, and adaptable to the diverse contexts of sports organizations. Through clear guidance, actionable templates, and real-world examples, this toolkit bridges the gap between sustainability concepts and tangible outcomes, making it a comprehensive resource for transformative change.

### *1.1. Background and rationale*

The global push towards sustainability is no longer optional but a fundamental necessity, driven by the mounting threats of environmental degradation, resource scarcity, and increasing societal demands for responsible practices. Climate change, biodiversity loss, and pollution have accelerated at alarming rates, prompting urgent calls for action across all sectors. The sports industry, often celebrated as a cornerstone of physical health, entertainment, and community cohesion, is not immune to these pressures. While sports foster immense societal and economic value, they simultaneously contribute to a substantial environmental footprint. Energy-intensive facilities, significant waste generation from events, high water consumption, and reliance on single-use materials highlight the sector's environmental challenges. As global awareness of sustainability grows, sports organizations are increasingly expected to lead by example and adopt strategies that reduce their environmental impact while maintaining their role as drivers of community engagement and positive societal change.

Transitioning from traditional linear economic models, which are characterized by the unsustainable “take, make, dispose” cycle, to regenerative and resource-efficient Circular Economy (CE) practices has become essential. The Circular Economy focuses on optimizing resource use, reducing waste, and designing systems that regenerate natural ecosystems. In this context, Circular Design (CD) serves as a practical strategy for embedding CE principles into the core operations of sports organizations. Circular Design emphasizes designing products, services, and processes that not only minimize resource consumption and waste but also extend product lifecycles, enable reuse, and foster environmental regeneration.

However, integrating Circular Design principles into local and regional sports organizations presents several unique challenges. These organizations often operate with limited budgets, which restrict their ability to invest in sustainable infrastructure or advanced technologies. Moreover, the diverse operational landscapes of sports clubs—ranging from small, volunteer-

run grassroots organizations to larger regional bodies—require tailored approaches to implementation. Varying levels of technical expertise and awareness further compound these challenges, as many stakeholders lack the necessary skills or knowledge to design and execute comprehensive sustainability strategies. Additionally, sports organizations must balance sustainability goals with their core mission of promoting sports participation, performance, and community engagement, which can sometimes create competing priorities.

To address these complexities and overcome barriers to implementation, the Double Diamond Design Thinking approach provides a practical and structured framework for problem-solving and innovation. Developed by the UK Design Council, the Double Diamond model is a highly effective methodology that fosters creativity, stakeholder collaboration, and iterative solution development. The model comprises four key phases: Discover, Define, Develop, and Deliver, ensuring that sustainability challenges are approached with a clear, systematic process.

1. **Discover:** this phase involves identifying the most pressing sustainability challenges and gathering insights through stakeholder engagement, data collection, and research. For sports organizations, this could include resource mapping, waste audits, or workshops with community members to uncover inefficiencies and opportunities for circular interventions.
2. **Define:** insights from the discovery phase are analysed and narrowed down into actionable, well-defined challenges or opportunities. For example, an organization might synthesize findings to focus on reducing energy consumption, addressing waste generation, or enhancing material reuse. Clearly defined goals help prioritize efforts and align stakeholders around a shared vision.
3. **Develop:** the development phase focuses on generating, testing, and refining innovative solutions. Sports organizations can prototype circular initiatives—such as modular facility designs, composting programs, or closed-loop material systems—before scaling them. This phase emphasizes collaboration and experimentation, allowing organizations to test ideas in a low-risk environment.
4. **Deliver:** successful prototypes are implemented at scale, and solutions are refined based on real-world performance. This phase ensures that sustainability initiatives achieve tangible, measurable outcomes and can be monitored over time using clear metrics, such as Key Performance Indicators (KPIs).

The Double Diamond approach ensures that sports organizations can navigate complex challenges in a structured, iterative manner, enabling them to identify solutions that are both innovative and practical. By fostering stakeholder engagement, creativity, and adaptability, the approach empowers organizations to design initiatives that align with global sustainability frameworks, such as the United Nations Sustainable Development Goals (SDGs) and the European Green Deal.

The IDEATION project, through this comprehensive toolkit, aims to bridge the gap between sustainability theory and practical implementation. By leveraging the Double Diamond framework, the toolkit empowers sports organizations to move beyond isolated, ad-hoc sustainability efforts and towards systematic, transformative change. The methodology equips organizations to identify immediate actions, such as low-cost energy efficiency measures; prototype scalable solutions, like circular supply chains and modular designs; and expand

circular strategies over time. Ultimately, this structured approach enables local and regional sports organizations to achieve measurable environmental, economic, and social benefits.

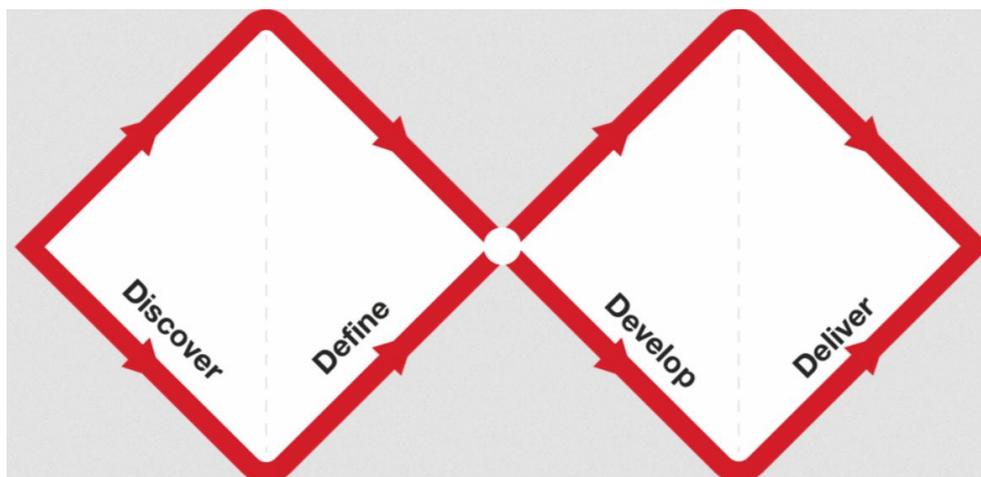
By embracing Circular Design and the Double Diamond approach, sports organizations can position themselves as leaders in sustainability, driving innovation, fostering community engagement, and contributing meaningfully to a regenerative future. This transition not only enhances their environmental performance but also strengthens organizational resilience, improves cost-efficiency, and aligns with stakeholder expectations for greater accountability and impact.

Every sports organization should consider its resources and capabilities and start to divide short, medium, and long-term goals accordingly. There is no one right answer, everyone has to adapt to their own needs.

### 1.2. Scope of the Toolkit

This toolkit provides sports organizations with a comprehensive, practical, and hands-on guide to facilitate the successful transition toward Circular Design (CD) principles. Recognizing the diverse needs, capacities, and operational challenges of local and regional sports organizations, this resource is specifically designed to be actionable, adaptable, and impactful across different scales and contexts. The toolkit serves as a bridge between **sustainability concepts** and real-world application, empowering organizations to embed Circular Economy (CE) practices into their operations with measurable outcomes. It achieves this by focusing on the following core components:

1. Integrating the Double Diamond approach to ensure a structured, creative, and iterative process. The toolkit incorporates the Double Diamond Design Thinking approach, a proven framework that enhances creativity, problem-solving, and structured decision-making. By guiding sports organizations through its four phases—Discover, Define, Develop, and Deliver—this approach ensures that solutions are tailored, actionable, and grounded in stakeholder needs. The toolkit emphasizes iterative learning, enabling organizations to identify challenges, explore a range of solutions, test small-scale prototypes, and refine initiatives before scaling them.



Source: <https://www.designcouncil.org.uk/our-resources/the-double-diamond/>

For instance, during the Discover phase, organizations might conduct resource audits, engage community members, and gather data to uncover inefficiencies or hidden opportunities (e.g.,

waste reduction or energy optimization). The Define phase then synthesizes these insights into actionable goals, such as reducing facility energy consumption by 30% or improving recycling infrastructure. In the Develop phase, the focus shifts to brainstorming and piloting solutions, such as introducing modular facility upgrades or closed-loop material systems. Finally, in the Deliver phase, successful prototypes are scaled across facilities or networks, with progress tracked using measurable indicators such as resource savings, emissions reductions, or community engagement metrics.

This structured, iterative approach provides sports organizations with the flexibility to adapt Circular Design strategies to their unique circumstances while fostering a culture of innovation, creativity, and data-driven improvement.

2. **Offering adaptable frameworks tailored to short-term, medium-term, and long-term strategies.** Understanding that every sports organization operates within a unique set of challenges—whether due to financial constraints, operational size, or stakeholder capacity—the toolkit delivers flexible and phased frameworks to support organizations at all stages of their sustainability journey. The solutions are broken down into three key time horizons:

- **Short-term strategies** (0–1 year): immediate, low-cost initiatives that deliver quick wins to build momentum and demonstrate progress. Examples include resource mapping, waste audits, and the introduction of energy-efficient measures (e.g., LED lighting, optimized heating and cooling systems). These short-term wins are critical for engaging stakeholders, securing buy-in, and laying the foundation for more substantial changes.
- **Medium-term strategies** (1–3 years): intermediate goals that focus on embedding modular, regenerative, and pilot solutions into operations. Examples include modular facility designs, piloting closed-loop systems like composting or recycling hubs, and building collaborative partnerships with local businesses and stakeholders to establish circular supply chains. These initiatives test innovative ideas, creating opportunities for refinement and scalability.
- **Long-term strategies** (3–5 years and beyond): systemic, transformative changes that embed Circular Economy principles into the organization’s core business models, infrastructure, and culture. This includes integrating renewable energy systems, adopting circular business models (e.g., equipment leasing or sharing platforms), and expanding successful sustainability practices across regional and national networks. Long-term strategies aim to achieve ambitious goals, such as net-zero emissions or regional sustainability leadership.

By offering solutions across these phases, the toolkit ensures that organizations—regardless of their size, capacity, or starting point—can progress at a manageable pace while achieving tangible and scalable outcomes.

3. **Enabling organizations to implement solutions that are measurable, scalable, and community-driven.** For Circular Design strategies to deliver lasting impact, they must be measurable, capable of being scaled across multiple sites, and deeply connected to the needs of the surrounding community. The toolkit emphasizes the importance of robust monitoring tools and clear Key Performance Indicators (KPIs) to track progress, measure success, and demonstrate accountability. By integrating tools such as resource audits, digital dashboards,

and impact surveys, organizations can collect both qualitative and quantitative data to evaluate the effectiveness of their initiatives.

Scalability is a central focus of the toolkit. Solutions are designed to be tested on a small scale, refined through iterative processes, and then expanded to larger facilities or regional networks. For example, a pilot composting program implemented at a local sports club can serve as a blueprint for broader waste-to-resource systems across a regional coalition of sports facilities.

Additionally, the toolkit prioritizes community engagement as a cornerstone of successful implementation. Circular Design strategies are inherently collaborative and thrive on active participation from stakeholders, including staff, athletes, volunteers, local businesses, and community members. Through initiatives such as community workshops, volunteer programs, and partnerships with schools or local governments, sports organizations can create a sense of shared ownership and foster a culture of sustainability. This not only enhances the effectiveness of circular initiatives but also strengthens social cohesion and community resilience.

By integrating the Double Diamond approach, offering tailored frameworks for implementation, and ensuring solutions are measurable, scalable, and community-driven, this toolkit equips sports organizations to make significant progress toward Circular Design principles. The result is a roadmap that enables organizations to reduce environmental impacts, drive operational efficiency, engage stakeholders, and position themselves as leaders in sustainable innovation within the sports industry.

### *1.3. The Double Diamond Approach in Circular Design*

The Double Diamond Design Thinking approach plays a crucial role in enhancing this toolkit by embedding a structured, iterative, and user-centered methodology across all stages of Circular Design (CD) implementation. Developed by the UK Design Council, the Double Diamond model is particularly effective for addressing complex challenges, such as transitioning local and regional sports organizations to sustainable, circular practices. By integrating the four phases—Discover, Define, Develop, and Deliver—the approach ensures that solutions are creative, targeted, and measurable, ultimately driving systemic change.

Each phase aligns with Circular Economy (CE) principles, emphasizing resource optimization, waste reduction, and environmental regeneration. The approach provides a clear roadmap for sports organizations, helping them systematically identify challenges, test solutions, and scale successful initiatives. This iterative process fosters collaboration, innovation, and stakeholder engagement, empowering organizations to develop strategies that are not only effective but also tailored to their unique needs and capacities.

#### **1. Discover: identify challenges and gather insights**

The Discover phase focuses on understanding the problem space by collecting insights, engaging stakeholders, and identifying sustainability challenges. Sports organizations often face diverse, interconnected issues, such as resource inefficiencies, waste mismanagement, and stakeholder disengagement.

### Key Actions:

- Conduct stakeholder workshops to capture perspectives from staff, athletes, volunteers, local businesses, and the broader community. This collaborative approach helps uncover challenges that may not be immediately visible, such as gaps in waste management processes or energy inefficiencies in facilities.
- Perform resource mapping and waste audits to analyse the flow of materials, energy, and water within operations. For example, a grassroots club may identify excessive single-use plastics at events or significant energy waste during off-peak facility usage.
- Use surveys, interviews, and focus groups to gather data on current practices, barriers to sustainability, and areas for improvement.

**Example:** A local sports club organizes workshops with staff, athletes, and community members to identify specific environmental pain points, such as single-use plastic bottles and high water consumption during tournaments. The insights reveal opportunities to reduce waste through reusable alternatives and optimize irrigation practices for outdoor fields.

### Benefits:

- Provides a holistic understanding of the organization's sustainability landscape.
- Encourages stakeholder buy-in through active involvement.
- Uncovers hidden inefficiencies and sustainability opportunities that can drive impactful interventions.

## 2. Define: analyse insights to define clear, actionable challenges

The Define phase involves synthesizing insights from the Discover phase to pinpoint core challenges and opportunities. This phase translates broad problems into focused, actionable statements that guide the development of solutions.

### Key Actions:

- Analyse data gathered during the Discover phase to identify priority areas for intervention. For instance, if waste mapping shows that 60% of event waste comes from single-use plastics, this becomes a focal area for action.
- Develop problem statements that are specific, measurable, and solution-oriented. These statements serve as guiding questions for the next phase of development.
- Prioritize challenges based on impact potential, resource feasibility, and alignment with Circular Design principles.

**Example:** After analysing waste audit results, a regional sports facility defines its key challenge as: *“How might we reduce single-use plastic waste at events by 40% within the next year while engaging athletes and fans in the process?”*

**Benefits:**

- Creates clarity and focus by narrowing down broad issues into actionable goals.
- Aligns efforts with the organization's sustainability priorities and resource capabilities.
- Builds a foundation for targeted, high-impact solutions.

**3. Develop: prototype and pilot potential solutions**

The Develop phase focuses on ideating, prototyping, and testing solutions to address the defined challenges. This stage encourages creativity and experimentation while involving stakeholders in the solution design process.

**Key Actions:**

- Facilitate ideation workshops to brainstorm potential solutions. Techniques such as brainstorming, mind mapping, and design sprints can help generate diverse ideas.
- Develop low-cost prototypes or small-scale pilots to test solutions in real-world settings. Examples include implementing composting programs at one facility, trialing modular seating systems, or testing energy-efficient lighting.
- Gather feedback and performance data to evaluate the feasibility, effectiveness, and scalability of pilot solutions.

**Example:** A sports organization pilots a waste-to-resource program by introducing compost bins for organic food waste generated at events. Volunteers monitor and collect data on waste diversion rates, while stakeholders provide feedback on implementation challenges and opportunities for improvement.

**Benefits:**

- Encourages innovation by exploring a range of potential solutions.
- Mitigates risk by testing solutions on a smaller scale before full implementation.
- Fosters collaboration and ownership by involving stakeholders throughout the process.

**4. Deliver: implement successful prototypes at scale and monitor progress**

The Deliver phase focuses on scaling successful prototypes, implementing solutions across operations, and tracking progress using robust monitoring and evaluation tools. This ensures that solutions deliver measurable, long-term impact aligned with Circular Design principles.

**Key Actions:**

- Roll out successful pilots at scale across facilities, events, or networks. For example, a pilot composting program can be expanded to all regional events, or energy-efficient systems can be installed across multiple facilities.
- Implement digital dashboards and KPIs to track performance metrics such as waste reduction, energy savings, or community engagement.

- Refine solutions based on feedback and performance data to ensure continuous improvement.
- Communicate successes and results to stakeholders, showcasing the environmental, social, and economic benefits of the initiatives.

**Example:** A grassroots club that successfully tested energy-efficient LED lighting implements the solution across all facilities, achieving a 25% reduction in energy consumption. Progress is tracked through real-time digital dashboards, with savings reported to stakeholders annually.

**Benefits:**

- Ensures scalable, measurable outcomes that align with sustainability goals.
- Enables data-driven decision-making for continuous improvement.
- Builds credibility and stakeholder confidence by demonstrating tangible results.

**Aligning the Double Diamond with Circular Economy principles**

By aligning the Double Diamond phases with Circular Economy principles, the approach ensures that solutions are:

- **Innovative:** encouraging creativity and out-of-the-box thinking to develop impactful circular strategies.
- **Participatory:** involving stakeholders at every stage, fostering ownership, and ensuring solutions address real-world challenges.
- **Outcomes-driven:** delivering measurable results that reduce environmental impact, optimize resources, and promote regeneration.

This structured, user-centred framework empowers sports organizations to transition from identifying sustainability gaps to implementing systemic, long-term solutions. By embedding the Double Diamond into Circular Design strategies, organizations can drive innovation, engage communities, and achieve meaningful environmental, economic, and social benefits.

## 2. Methodology for Building a Circular Design Strategy

The methodology for developing a Circular Design (CD) strategy provides a structured, phased approach to help local and regional sports organizations adopt Circular Economy (CE) principles in a practical, scalable, and effective manner. By combining CE strategies with a systematic problem-solving framework, organizations can address unique sustainability challenges while ensuring long-term environmental, social, and economic benefits.

A critical element of this methodology is the integration of the Double Diamond Design Thinking approach, which ensures a creative, collaborative, and iterative process to develop tailored solutions. Each phase of the Double Diamond—Discover, Define, Develop, and Deliver—is aligned with short-term, medium-term, and long-term goals to enable continuous improvement and measurable outcomes.

### 2.1 Framework for Short, Medium, and Long-term Plans

The Circular Design strategy is implemented through a phased framework that breaks down sustainability goals into manageable timelines and actionable steps:

- **Short-term plans** (0–1 year): focus on foundational actions that deliver **quick wins** and build momentum. These include:
  - a) Waste audits and resource mapping to identify inefficiencies.
  - b) Implementing energy-efficient systems, such as LED lighting or optimized heating.
  - c) Community education campaigns to build awareness.
- **Medium-term plans** (1–3 years): address more complex challenges by piloting and scaling circular initiatives, such as:
  - a) Modular facility designs that allow for future upgrades or reuse.
  - b) **Closed-loop systems** for resource management, such as composting programs or circular supply chains.
  - c) Building collaborative partnerships with local businesses and stakeholders.
- **Long-term plans** (3–5 years and beyond): integrate CE principles into the organization’s core strategies and scale successful initiatives regionally. Actions include:
  - a) Adopting renewable energy systems (e.g., solar panels, wind turbines).
  - b) Transitioning to circular business models, such as equipment leasing and sharing platforms.
  - c) Establishing networks to expand circular practices across regional and national levels.

### 2.2 Adapting CD Strategies to Local and Regional Contexts

To ensure effectiveness, Circular Design strategies must be tailored to the unique needs, resources, and challenges of local and regional sports organizations:

- **Needs assessment:** conduct comprehensive evaluations of the local environmental, economic, and social landscape to prioritize key areas for intervention.
- **Scalable solutions:** strategies should be adaptable and flexible to accommodate varying organizational capacities.

- **Community integration:** engage local stakeholders to align sustainability initiatives with community goals, values, and challenges.

Example: A small grassroots club may focus on low-cost waste reduction programs, while a larger regional organization may implement pilot projects for modular facility designs or renewable energy adoption.

### *2.3 Stakeholder Engagement and Collaboration*

Collaboration with diverse stakeholders is critical to the success of Circular Design initiatives. Engaging stakeholders fosters collective ownership, innovation, and resource sharing.

1. **Community involvement:** involve local communities in the planning and implementation of CD strategies to ensure alignment with their needs and values. Host workshops, forums, and engagement events.
2. **Partnership development:** collaborate with local businesses, government bodies, and educational institutions to access expertise, funding, and resources for sustainability projects.
3. **Knowledge sharing:** create platforms for sharing best practices and success stories across organizations to inspire and guide implementation efforts. This includes establishing networks for regular dialogue and collaboration.

By adopting this methodology, sports organizations can create actionable pathways to sustainability that are aligned with their operational realities and the broader goals of the Circular Economy.

### *2.4 Integrating the Double Diamond Design Thinking Approach*

The adoption of Circular Economy (CE) principles is essential for sports organizations aiming to reduce their environmental footprint and foster sustainable growth. By integrating the Double Diamond Design Thinking framework, this toolkit provides a structured, iterative approach to implement Circular Design (CD) strategies effectively. The Double Diamond's four phases—Discover, Define, Develop, and Deliver—enhance stakeholder engagement, creativity, and measurable progress, ensuring tailored solutions for diverse operational contexts.

The Double Diamond approach, developed by the UK Design Council, offers a structured yet flexible framework to solve complex challenges. It consists of four phases: Discover, Define, Develop, and Deliver. Integrating this model can enhance the creation and implementation of Circular Design (CD) strategies in sports organizations by fostering creativity, stakeholder collaboration, and iterative problem-solving.

The Double Diamond Design Thinking approach can support local sports clubs in several ways by providing a structured framework to identify challenges, explore solutions, and implement impactful initiatives effectively.

#### **Phase 1: Discover**

This phase involves identifying challenges, gathering insights, and understanding the needs of stakeholders.

### **Application in sports organizations:**

- Conduct stakeholder workshops to uncover specific barriers to sustainability, such as waste management inefficiencies or lack of awareness about Circular Economy principles.
- Use community surveys and resource mapping tools to understand current practices and pinpoint opportunities for circular interventions.

**Example:** A local sports club engages athletes, coaches, and community members to explore issues around waste generation during events, leading to valuable insights on improving recycling practices.

### **Benefits:**

- Helps clubs identify hidden problems, such as excessive waste generation during events or insufficient community engagement.
- Increases awareness of sustainability issues within the club and community.

### **Phase 2: Define**

The Define phase focuses on analysing the information gathered and narrowing it down to actionable challenges or opportunities.

### **Application in sports organizations:**

- Synthesize data from the Discover phase to identify core issues, such as high energy consumption or limited recycling infrastructure.
- Formulate clear problem statements, e.g., "How might we reduce energy usage by 30% within the next year?"

**Example:** A regional sports facility defines its key challenge as "optimizing energy usage during non-peak hours," leading to targeted interventions.

### **Benefits:**

- Provides clarity and focus, ensuring clubs address the most impactful challenges.
- Aligns efforts with achievable sustainability goals, such as reducing carbon emissions or improving recycling rates.

### **Phase 3: Develop**

This phase emphasizes brainstorming and prototyping potential solutions.

### **Application in sports organizations:**

- Use ideation sessions with stakeholders to generate innovative circular solutions, such as modular facility designs or closed-loop material systems.
- Create prototypes for small-scale pilots, such as introducing refillable water stations or testing biodegradable sports equipment.

**Example:** A sports club prototypes a community composting program for organic waste generated during events and evaluates its feasibility.

**Benefits:**

- Encourages innovation by exploring diverse ideas, even with limited resources.
- Creates opportunities for collaboration with local businesses, environmental organizations, or government entities to test solutions.

**Phase 4: Deliver**

The Deliver phase focuses on testing, refining, and implementing the solutions.

**Application in sports organizations:**

- Roll out successful prototypes as full-scale initiatives, such as installing renewable energy systems across facilities or launching a regional waste-to-resource program.
- Use monitoring tools, such as digital dashboards and KPIs, to track progress and make data-driven improvements.

**Example:** Following successful prototyping, a grassroots sports club implements modular seating systems that allow for easy repair and replacement.

**Benefits:**

- Ensures sustainability initiatives are effective and scalable, with measurable results.
- Provides data-driven insights for continuous improvement, enabling clubs to adjust and refine solutions over time.

### 3. Practical Toolkit for Implementation

The Practical Toolkit for Implementation serves as a step-by-step guide for local and regional sports organizations to implement Circular Design (CD) strategies. It translates theoretical concepts into actionable steps, ensuring that organizations can achieve measurable, scalable, and community-driven outcomes. By combining immediate, impactful initiatives with long-term systemic changes, the toolkit empowers organizations to adopt Circular Economy (CE) principles effectively.

The integration of the Double Diamond Design Thinking approach throughout the toolkit enhances problem-solving, innovation, and stakeholder collaboration. Each phase of the Double Diamond—Discover, Define, Develop, and Deliver—aligns with short-term, medium-term, and long-term strategies, providing organizations with a structured framework to achieve sustainability goals.

#### 3.1. Short-Term Initiatives

Embarking on a sustainability journey doesn't have to be overwhelming. This toolkit provides a practical starting point with quick-win actions that sports organizations can implement immediately to build momentum and demonstrate their commitment to Circular Design principles. These foundational actions align with the Discover and Define phases of the Double Diamond approach.

##### 3.1.1. Conducting Initial Assessments (Resources and Waste Mapping)

The Discover phase begins with understanding existing resource flows, identifying waste hotspots, and collecting baseline data.

##### **Key Actions:**

- Resource inventory: catalogue equipment, materials, and energy use to identify inefficiencies.
- Waste audits: measure the type, volume, and sources of waste to uncover opportunities for reduction and reuse.
- Hotspot identification: use tools like resource mapping to identify high-impact areas, such as energy inefficiency or plastic waste.
- Stakeholder engagement: organize workshops to gather input from staff, athletes, and community members on sustainability challenges.

**Example:** A local sports club conducts a waste audit and identifies single-use plastics as the primary source of event waste.

##### **Double Diamond integration:**

- Discover: the data collection process highlights key issues.
- Define: clear problem statements emerge, such as “How might we reduce single-use plastic waste at events by 50%?”

### 3.1.2. Quick Wins (Energy Efficiency and Recycling Initiatives)

Quick wins target low-cost, high-impact solutions that can be implemented immediately.

#### Key Actions:

- Install LED lighting to improve energy efficiency.
- Launch recycling programs with clear waste segregation practices.
- Introduce reusable water bottles to replace single-use plastics.
- Optimize heating, ventilation, and cooling systems for energy conservation.

**Example:** A regional facility replaces traditional lighting with LED bulbs, reducing energy consumption by 20%.

#### Double Diamond integration:

- Define: set specific KPIs, such as achieving a 20% reduction in energy consumption within six months.

### 3.1.3. Community Engagement Models

Community involvement ensures stakeholder participation and fosters a shared commitment to sustainability.

#### Key Actions:

- Launch awareness campaigns to educate participants and spectators on CE principles.
- Host community clean-up events or workshops on waste reduction.
- Partner with schools and local organizations to promote circular practices.

**Example:** A sports club runs a “Bring Your Own Bottle” campaign, reducing plastic bottle usage during community matches.

#### Double Diamond integration:

- Discover: feedback from community workshops identifies key behavioural barriers.
- Develop: small pilot projects, like awareness campaigns, test engagement methods.

## 3.2. Medium-Term Goals

Medium-term goals align with the Develop and Deliver phases of the Double Diamond approach, focusing on piloting and scaling innovative solutions.

### 3.2.1. Developing Modular Design Approaches for Facilities

Modular designs allow sports facilities to adapt, expand, and reduce waste by reusing materials.

#### Key Actions:

- Assess infrastructure to identify opportunities for modular upgrades.

- Use sustainable materials that are recyclable or biodegradable.
- Develop systems that enable easy maintenance and reuse of components.

**Example:** A facility introduces modular seating systems that can be repaired, reconfigured, or reused for different events.

**Double Diamond integration:**

- Develop: prototype modular designs to assess feasibility and scalability.
- Deliver: roll out tested solutions across facilities.

### 3.2.2. Pilot Programs: Closed-Loop Systems and Waste-to-Resource Models

Pilot programs test circular innovations like closed-loop systems that convert waste into resources.

**Key Actions:**

- Implement composting systems for food waste generated at events.
- Test water recycling solutions for facility maintenance.
- Partner with local businesses for circular supply chains (e.g., reusable uniforms or equipment).

**Example:** A club introduces a composting program to process organic waste, reducing landfill contributions.

**Double Diamond integration:**

- Develop: prototypes and small-scale tests allow adjustments before scaling.

### 3.2.3. Collaborations with Local Businesses for Circular Supply Chains

Building partnerships enhances access to resources, knowledge, and technology for circular solutions.

**Key Actions:**

- Collaborate with suppliers to source sustainable products.
- Develop take-back programs for old equipment to enable recycling or reuse.
- Partner with waste management firms to establish circular systems.

**Example:** A regional organization collaborates with a local supplier to lease sports equipment, reducing new production.

**Double Diamond integration:**

- Develop: test partnerships with pilot initiatives.
- Deliver: scale collaborations across networks.

### 3.3. Long-Term Strategies

Long-term strategies focus on scaling proven solutions and integrating Circular Economy principles into core operations. These align with the final Deliver phase.

#### 3.3.1. Establishing Sustainable Business Models

Circular business models provide long-term economic and environmental benefits.

**Key Actions:**

- Implement leasing systems for sports equipment to extend lifecycle.
- Develop equipment-sharing platforms among clubs.
- Track equipment lifecycle to enable reuse and recycling.

**Example:** A coalition of regional clubs establishes a platform for sharing specialized sports equipment, reducing costs and waste.

#### 3.3.2. Integration of Renewable Energy in Sport Facilities

Transitioning to renewable energy supports carbon neutrality goals.

**Key Actions:**

- Install solar panels or wind turbines for energy generation.
- Conduct energy audits to optimize efficiency alongside renewable adoption.
- Partner with green energy providers for sustainable power sourcing.

**Example:** A facility reduces emissions by 60% after integrating solar panels and optimizing energy use.

#### 3.3.3. Expanding Circular Practices to Regional Networks

Scaling circular practices ensures broader regional impact and collaboration.

**Key Actions:**

- Establish regional coalitions to standardize circular policies.
- Leverage joint funding to implement large-scale initiatives.
- Develop digital platforms for knowledge sharing and collaboration.

**Example:** A regional network achieves a 50% circularity rate through shared waste management practices and modular infrastructure designs.

### 3.4. Double Diamond: A Framework for Continuous Improvement

The Double Diamond approach underpins each phase of this toolkit, ensuring that strategies are:

- **Discover:** based on thorough assessments, stakeholder engagement, and data collection.
- **Define:** focused on clear, actionable challenges and KPIs.

- **Develop:** piloted and refined through iterative prototyping.
- **Deliver:** implemented at scale with continuous monitoring for improvement.

By integrating this approach, sports organizations can transition to Circular Design principles in a systematic, scalable, and impactful way.

## 4. Milestones and Evaluation Framework

An effective Circular Design (CD) strategy requires a clear roadmap with measurable milestones and an evaluation framework to monitor progress, identify challenges, and ensure continuous improvement. The framework presented here provides sports organizations with tools to assess environmental, economic, and social impacts over short-term, medium-term, and long-term horizons. It aligns with the Double Diamond approach, ensuring that insights, strategies, and solutions are systematically developed, tested, implemented, and evaluated.

### 4.1. Key Performance Indicators (KPIs) for Sustainability

Key Performance Indicators (KPIs) serve as measurable benchmarks to evaluate progress toward sustainability goals. They align with the Define and Deliver phases of the Double Diamond, translating insights into actionable targets and measuring the outcomes of implemented solutions.

#### **Environmental KPIs:**

- Waste reduction: percentage of waste diverted from landfills.
- Energy efficiency: reduction in energy consumption and carbon emissions.
- Resource use: percentage of materials reused, recycled, or sourced sustainably.
- Water consumption: reduction in water usage and implementation of water recycling systems.

#### **Economic KPIs:**

- Cost savings: financial savings from energy-efficient or circular solutions (e.g., LED lighting, modular infrastructure).
- Revenue generation: income from circular business models (e.g., shared equipment, recycled merchandise).
- Return on investment (ROI): payback period and long-term savings of circular initiatives.

#### **Social KPIs:**

- Community engagement: number of participants involved in sustainability events, campaigns, or workshops.
- Behavioural change: percentage of community members adopting sustainable practices (e.g., reusable water bottles).
- Inclusivity: engagement of marginalized or underrepresented groups in circular initiatives.

**Example:** A regional sports facility tracks a 40% reduction in single-use plastic waste within one year, aligning with a clear KPI from the Define phase.

## 4.2. Progress Monitoring Tools

To ensure solutions are effective and scalable, robust tools are needed to monitor progress across the Double Diamond's Develop and Deliver phases.

### Digital dashboards:

- Real-time data visualization to track energy, waste, water, and carbon metrics.
- Example: A facility dashboard monitors energy usage, highlighting inefficiencies and savings post-renewable energy implementation.

### Community feedback surveys:

- Stakeholder input to assess satisfaction, behavioural changes, and areas for improvement.
- Example: Post-event surveys gather insights on recycling initiatives, ensuring stakeholder feedback informs future actions.

### Periodic reporting:

- Scheduled reports (e.g., quarterly, annual) to document progress, KPIs, and success stories.

### Double Diamond integration:

- Develop: collect initial data from pilot initiatives to assess feasibility.
- Deliver: use dashboards and surveys to measure impact, refine strategies, and scale solutions.

## 4.3. Milestone Tracking for Short, Medium, and Long-term Objectives

Milestones provide organizations with a structured timeline to achieve sustainability goals. Each milestone aligns with the Double Diamond phases, ensuring progress is strategic, iterative, and measurable.

### Short-Term Milestones (0–1 year):

Focus on foundational initiatives and immediate results, aligned with the Discover and Define phases.

- Conduct baseline assessments (e.g., waste audits, energy mapping).
- Launch quick-win initiatives (e.g., energy-efficient lighting, recycling systems).
- Establish stakeholder engagement programs to build awareness and support.

**Example:** A club achieves a 20% reduction in event waste within the first year by transitioning to reusable water bottles.

### Medium-Term Milestones (1–3 years):

Target pilot programs and scaling of circular solutions, aligning with the Develop phase.

- Implement modular infrastructure or closed-loop systems (e.g., composting, water recycling).
- Test and refine innovative circular solutions, gathering feedback and performance data.
- Expand successful initiatives to additional facilities or regional networks.

**Example:** A facility tests and rolls out a closed-loop composting program, achieving a 50% diversion of organic waste within three years.

### **Long-Term Milestones (3–5+ years):**

Focus on systemic, transformative changes aligned with the Deliver phase.

- Achieve carbon neutrality through renewable energy systems.
- Transition to circular business models (e.g., leasing programs for sports equipment).
- Establish regional coalitions to expand circular strategies across multiple organizations.

**Example:** A regional sports coalition achieves net-zero carbon emissions through a combination of energy-efficient systems, renewable energy adoption, and resource-sharing platforms.

### *4.4. Integration of the Double Diamond Approach for Evaluation*

The Double Diamond framework ensures that milestones and evaluations are systematic, iterative, and outcomes-driven:

#### **1. Discover phase:**

- Conduct baseline assessments to identify environmental, economic, and social gaps.
- Use stakeholder engagement to collect insights and define priority areas.

#### **2. Define phase:**

- Establish KPIs for waste reduction, energy efficiency, and social impact.
- Set clear short-, medium-, and long-term milestones aligned with CE principles.

#### **3. Develop phase:**

- Prototype solutions and pilot programs to test feasibility and collect initial performance data.
- Refine KPIs based on pilot results to ensure alignment with sustainability goals.

#### **4. Deliver phase:**

- Implement successful prototypes at scale and track progress through KPIs, dashboards, and reporting tools.
- Continuously evaluate results, gather feedback, and refine strategies for greater impact.

#### *4.5. Advantages of Integrating Double Diamond with KPIs*

Integrating the Double Diamond approach with this evaluation framework offers several benefits:

- **Measurable impact:** clear KPIs ensure tangible outcomes, such as reduced energy costs, increased circularity rates, and improved community satisfaction.
- **Continuous improvement:** iterative evaluations enable organizations to refine solutions based on real-world data and feedback.
- **Scalability:** pilot programs tested during the Develop phase provide blueprints for scaling initiatives across regional networks.
- **Stakeholder engagement:** transparent progress tracking fosters trust and collaboration among staff, community members, and partners.

#### *4.6. Example: Evaluation Framework in Action*

##### **Scenario: regional sports event – waste management strategy**

Large-scale sports events often generate substantial amounts of waste, posing significant environmental and logistical challenges. This scenario outlines how a regional sports organization uses the Double Diamond approach to design, test, implement, and evaluate a successful waste management strategy, focusing on reducing single-use plastics while delivering measurable environmental and economic benefits.

##### **Discover phase: identifying challenges and gathering insights**

The process begins with a comprehensive assessment to understand the scale and nature of waste generation:

- A baseline waste audit is conducted during a typical regional sports event. Waste materials are sorted and measured to determine the primary sources and volume. The audit reveals that:
  - 70% of event waste consists of single-use plastics, such as disposable water bottles, plastic cups, food containers, and cutlery.
  - Waste bins are inconsistently placed, contributing to improper disposal and recycling contamination.
- Stakeholder workshops are organized with event staff, volunteers, vendors, athletes, and spectators to gather insights on the challenges of waste management. Common issues identified include:
  - Lack of refillable water stations leading to heavy reliance on bottled drinks.
  - Limited awareness among spectators about recycling and waste sorting practices.
  - Vendors using non-recyclable plastic packaging due to cost and availability concerns.
- Community feedback surveys are distributed post-event to assess public sentiment regarding sustainability and identify areas for improvement.

**Key insight:** The findings confirm that single-use plastic waste is a high-impact problem that can be addressed through practical and innovative solutions.

### **Define phase: setting KPIs and actionable goals**

The organization synthesizes insights from the Discover phase and formulates a clear, actionable challenge: *"How might we reduce single-use plastic waste at our sports events by 40% within one year while maintaining a positive participant experience?"*

To measure progress and outcomes, Key Performance Indicators (KPIs) are established:

1. Quantitative KPI: Reduce single-use plastic waste by 40% (measured in kilograms) within 12 months.
2. Adoption rate KPI: Achieve a 70% adoption rate of refillable water stations and reusable cups among event attendees.
3. Vendor engagement KPI: 80% of food and beverage vendors switch to recyclable or compostable packaging materials.
4. Economic KPI: Achieve a 20% cost reduction in waste management (e.g., fewer landfill disposal fees and savings from reduced waste transport).

These KPIs ensure that goals are specific, measurable, and aligned with sustainability principles.

### **Develop phase: designing and testing solutions**

The organization develops a pilot program to test potential solutions during a smaller-scale regional event. This iterative phase includes the following steps:

1. Introducing refillable water stations:
  - Multiple refillable water stations are installed at key locations (entrances, food areas, and near spectator seating).
  - Attendees are encouraged to bring reusable bottles through pre-event communication campaigns (e.g., social media, newsletters, and event posters).
2. Reusable cups and food packaging:
  - Reusable, deposit-based cups are introduced for beverages sold at the event. Spectators pay a small refundable deposit, incentivizing them to return cups for reuse.
  - Vendors are provided with access to recyclable or compostable packaging for food and drinks.
3. Educational campaigns and signage:
  - Clear, visually appealing signage is placed throughout the event venue, instructing attendees on proper waste disposal and the benefits of reducing single-use plastics.
  - Volunteers (e.g., "Green Teams") interact with spectators, explaining the new system and encouraging responsible behaviour.

#### 4. Feedback and monitoring:

- Surveys are conducted during and after the pilot to measure attendee satisfaction, adoption rates, and barriers to participation.
- Waste bins are monitored to analyse contamination rates and recycling effectiveness.

**Key insight:** The pilot reveals high adoption rates for refillable water stations but identifies challenges with vendor compliance due to cost concerns. Adjustments, such as subsidies or incentives for vendors, are proposed for the scaled implementation.

#### **Deliver phase: scaling and monitoring the initiative**

Building on the success and lessons from the pilot, the initiative is scaled to all regional sports events over the following year. Key actions include:

##### 1. Full-scale implementation:

- Refillable water stations are standardized at all event venues, with clear pre-event communication encouraging spectators to bring reusable bottles.
- Vendors are required to use compostable or recyclable packaging, supported by partnerships with local suppliers to lower costs.
- Deposit-based reusable cups are expanded to all beverage outlets, reducing disposable cup waste.

##### 2. Monitoring and evaluation:

- Digital dashboards track waste diversion rates, adoption of refillable solutions, and cost savings in real time.
- Post-event surveys gather attendee feedback to assess satisfaction and identify areas for further improvement.
- Waste audits at events measure progress against the baseline and verify reductions in single-use plastic.

##### 3. Continuous improvement:

- Data-driven insights are used to refine strategies, such as increasing the number of refill stations or improving waste signage.
- Success stories are shared with the community to foster further engagement and promote the event as a leader in sustainability.

#### **Outcome: tangible environmental, economic, and social benefits**

The comprehensive waste management strategy achieves the following results within one year:

##### 1. 50% Reduction in Single-Use Plastics:

- The initiative surpasses the 40% reduction target, eliminating significant amounts of waste from landfills.

2. High adoption rates:
  - 75% of attendees actively use refillable water stations and reusable cups, demonstrating strong community buy-in.
3. Vendor compliance:
  - 85% of vendors adopt compostable or recyclable packaging, facilitated by partnerships with local suppliers.
4. Cost savings:
  - Waste management costs decrease by 25% due to lower landfill disposal fees and reduced waste transportation needs.
5. Enhanced community engagement:
  - Surveys indicate a 20% increase in community satisfaction related to event sustainability initiatives.
  - Positive media coverage highlights the organization's leadership in environmental responsibility, enhancing its reputation and appeal to sponsors.

### **Key learnings and future steps**

The success of this strategy highlights the importance of integrating the Double Diamond approach into Circular Design initiatives:

- The Discover phase ensures problems are well-understood and stakeholder insights inform solutions.
- The Define phase provides clear, measurable goals to guide the strategy.
- The Develop phase enables small-scale testing and refinement before full implementation.
- The Deliver phase ensures scalability, with monitoring tools enabling continuous improvement.

Future steps include expanding the initiative to other sustainability areas, such as energy efficiency and resource sharing, and creating a regional sustainability coalition to promote best practices across sports organizations.

## 5. Evaluation Tools

Implementing Circular Design (CD) strategies in sports organizations requires robust evaluation tools to assess environmental, economic, and social impacts. These tools ensure that the initiatives are effective, measurable, and aligned with Circular Economy (CE) principles. By integrating the Double Diamond approach, the evaluation framework becomes systematic, iterative, and participatory, allowing organizations to test, refine, and scale circular strategies.

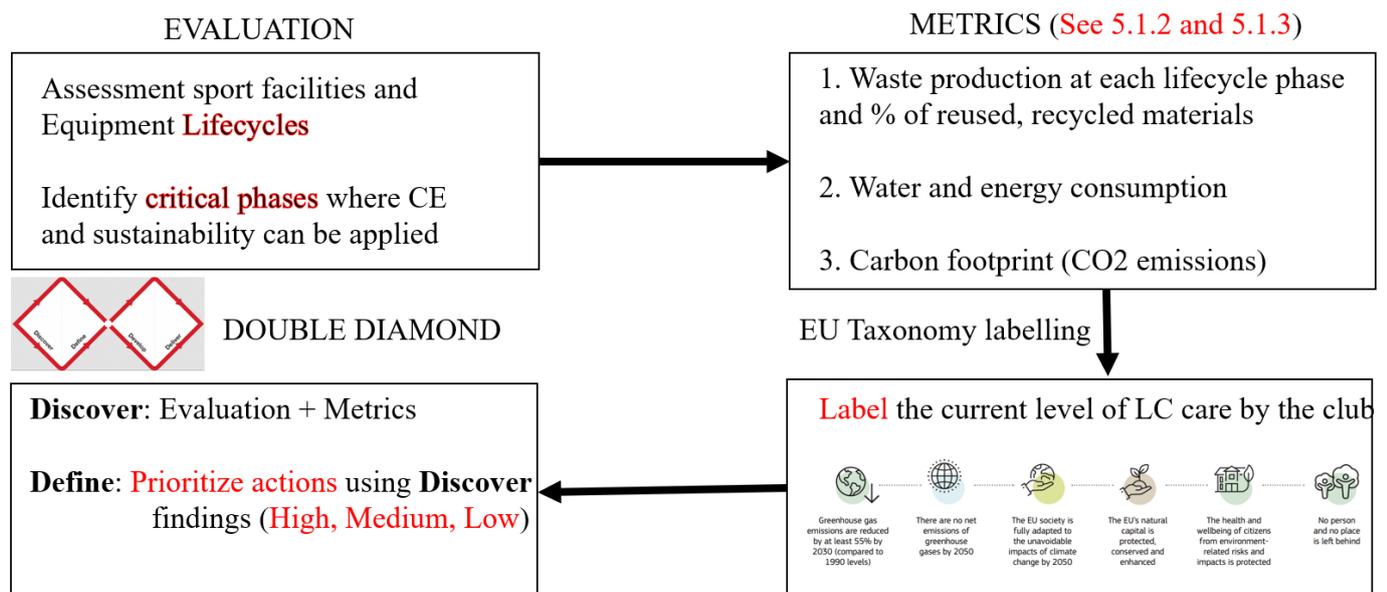
Each tool presented here corresponds to specific evaluation criteria across the four phases of the Double Diamond—Discover, Define, Develop, and Deliver—and provides actionable insights for continuous improvement.

### 5.1. Environmental Impact Evaluation Tools

Evaluating environmental impact ensures that Circular Design strategies effectively reduce resource consumption, waste generation, and carbon footprints.

#### 5.1.1. Life Cycle Assessment (LCA)

**Purpose:** assess the environmental impact of a product, service, or facility across its entire lifecycle—from raw material extraction to end-of-life disposal.



## WHERE TO WORK

### Application:

- Evaluate sports facilities, equipment, or event materials (e.g., synthetic turf, energy systems).
- Identify critical phases where energy, emissions, or waste can be reduced.

## EVALUATION OF EFFICACY:

### Metrics:

- Carbon footprint (CO<sub>2</sub> emissions).
- Water and energy consumption.
- Waste generation at each lifecycle phase.

### EU Taxonomy labelling (Indirect Benefit for the Club):

- Depending on the results of the evaluation of the use of the Metrics.

### ACTIONS (Examples):

- 1) Use water controls for the users of the installation, giving feedback to the user and club (priority: LOW).
- 2) A sports club conducts an LCA on synthetic turf, discovering significant emissions during production. They replace it with a biodegradable alternative that reduces the carbon impact by 30%. (priority: MEDIUM).
- 3) Improve illumination of the installation (priority: HIGH).

### Double Diamond integration:

- **Discover:** conduct LCAs to gather baseline environmental data.
- **Define:** use findings to prioritize sustainability challenges (e.g., “How might we reduce lifecycle emissions by 40%?”).

### 5.1.2. Circularity Gap Metrics

**Purpose:** measure how well materials and resources are retained in a circular loop.

### WHERE TO WORK

#### Application:

- Track material reuse, recycling rates, and landfill diversion.
- Evaluate progress toward circularity targets for events or facilities.

#### Key Indicators:

- % of materials reused, recycled, or composted.
- Waste diversion rates (percentage of waste diverted from landfills).
- Virgin vs. recycled material usage.

### ACTIONS (Examples):

- 1) Replace single-use water bottles at events with refill stations. Reduces plastic waste and encourages reusable containers, diverting 5–10% of landfill-bound waste. (priority: LOW).

2) Introduce a material recovery station at sports facilities, separating compostable, recyclable, and landfill waste streams. Diverts 40–50% of waste from landfills by facilitating material sorting and recovery. (priority: MEDIUM).

3) Redesign facility operations using closed-loop systems, such as modular flooring made from recycled materials, and implement composting for food waste. Reduces landfill waste by 60–80%, reduces reliance on virgin materials, and increases the proportion of recycled materials used in the facility by 50%. (priority: HIGH).

**Double Diamond Integration:**

- **Develop:** pilot closed-loop systems like composting or modular designs.
- **Deliver:** monitor circularity metrics through audits and reporting tools.

### 5.1.3. Energy and Water Audits

**Purpose:** assess energy and water usage to identify inefficiencies and opportunities for savings.

**WHERE TO WORK**

**Application:**

- Conduct energy audits for facilities to evaluate lighting, HVAC systems, and renewable energy integration.
- Analyse water consumption patterns and recycling opportunities.

**Metrics:**

- Reduction in energy consumption (kWh/year).
- % of renewable energy use.
- Reduction in water usage and % of water recycled.

**ACTIONS (Examples):**

1) Install water-saving devices, such as low-flow faucets and showerheads in locker rooms. Reduces water usage by 10–15% with minimal upfront investment. (priority: LOW).

2) Upgrade lighting systems to energy-efficient LEDs and install motion sensors in low-traffic areas. Decreases energy consumption by 25–30% annually, improving sustainability and cutting costs. (priority: MEDIUM).

3) Conduct a comprehensive energy and water audit of the entire facility, leading to the installation of solar panels and a greywater recycling system. Achieves 50% renewable energy use and reduces water consumption by 40%, including recycling 25% of water for non-potable uses. (priority: HIGH).

**Double Diamond integration:**

- **Discover:** identify inefficient resource usage through audits.
- **Deliver:** use KPIs to track reductions post-intervention.

## 5.2. Economic Impact Evaluation Tools

Economic evaluation ensures that Circular Design strategies are financially viable while creating long-term value for sports organizations.

### 5.2.1. Economic Feasibility Analysis

**Purpose:** assess the financial implications of circular initiatives, including cost-benefit analysis and ROI.

**Application:**

- evaluate investments in energy efficiency, waste reduction systems, or modular infrastructure.
- identify long-term operational savings.

**Metrics:**

- Return on Investment (ROI) and payback period.
- Cost savings from energy-efficient systems or reduced waste disposal.
- Revenue generation from circular business models (e.g., leasing, recycling).

**Example:** A club invests in solar panels with an ROI of 5 years, saving €10,000 annually on energy costs.

**Double Diamond integration:**

- **Develop:** pilot economic feasibility for small-scale initiatives.
- **Deliver:** scale successful solutions based on ROI data.

### 5.2.2. Circular Business Model Evaluation

**Purpose:** assess the financial performance and sustainability of circular business models.

**Application:**

- evaluate income streams from equipment leasing or shared platforms.
- measure cost reductions from reuse or repair systems.

**Metrics:**

- Leasing revenues vs. traditional purchase costs.
- % of cost savings through reuse and repair.

**Example:** A sports club transitions to leasing shared sports equipment, saving 30% annually in equipment procurement costs.

**Double Diamond integration:**

- **Define:** prioritize models that optimize resource use and generate revenue.
- **Deliver:** monitor performance metrics for long-term adoption.

### 5.3. Social Impact Evaluation Tools

Social impact tools assess how Circular Design strategies contribute to community engagement, inclusivity, and well-being.

#### 5.3.1. Community Impact Assessments

**Purpose:** measure the social benefits of circular initiatives, such as improved inclusivity, engagement, and health.

**Application:**

- Assess participation in sustainability workshops or programs.
- Measure behavioural changes (e.g., reduction in single-use plastics).

**Metrics:**

- Community participation rates.
- % of stakeholders adopting sustainable behaviours.
- Community satisfaction and inclusivity scores.

**Example:** A sports club introduces an inclusive recycling program that increases participation among underrepresented groups by 40%.

**Double Diamond integration:**

- **Discover:** Gather community insights on challenges and priorities.
- **Deliver:** Track adoption rates and satisfaction levels post-implementation.

#### 5.3.2. Social Surveys and Feedback Tools

**Purpose:** collect qualitative and quantitative feedback on the perceived benefits and challenges of circular strategies.

**Application:**

- Use pre- and post-initiative surveys to measure satisfaction and changes in awareness or behaviours.

**Metrics:**

- Stakeholder satisfaction scores.
- Perceived barriers to adopting sustainable practices.

**Example:** Spectator surveys at a zero-waste sports event reveal a 95% satisfaction rate with new recycling initiatives.

**Double Diamond integration:**

- **Develop:** gather stakeholder feedback during pilot testing.
- **Deliver:** refine solutions based on survey insights.

By applying these evaluation tools, sports organizations can comprehensively monitor their progress, ensuring that Circular Design strategies deliver measurable benefits across environmental, economic, and social dimensions. This integrated, iterative approach enables continuous improvement and supports the long-term sustainability goals of sports organizations.

## 6. Recommendations for Sport Organization Management

To ensure the successful adoption of Circular Design strategies, sport organizations must establish an environment that fosters innovation, leverages digital tools, and builds resilience through circular principles. The Double Diamond framework provides a structured and iterative approach to implementing these recommendations, enabling clubs to address complex sustainability challenges effectively. Below are recommendations structured across the four Double Diamond phases - Discover, Define, Develop, and Deliver—alongside practical evaluation tools for environmental, economic, and social aspects.

Summary of Recommendations Using the Double Diamond:

Phase	Action	Tools	KPIs
<b>Discover</b>	Conduct resource audits, surveys, and workshops to identify inefficiencies.	Baseline Audits, MFA Tools	Waste levels, resource consumption.
<b>Define</b>	Establish clear, actionable sustainability goals and KPIs.	Stakeholder Surveys, KPIs Setup	Defined reduction targets (e.g., 30%).
<b>Develop</b>	Pilot solutions like modular systems, composting, and IoT-based tracking.	Circularity Pilots, Digital Tools	Prototype performance, cost savings.
<b>Deliver</b>	Scale solutions with digital tracking and performance reporting.	Dashboards, Reports	% reduction in waste, energy, and water.

### 6.1. Fostering a Circular Design Culture

Embedding Circular Design principles into the organization’s culture is critical for achieving lasting change.

**Discover phase:** understanding current culture and barriers

- Conduct stakeholder workshops to identify existing attitudes toward sustainability.
- Use surveys to gather insights into barriers, knowledge gaps, and opportunities.

Tools:

- Community feedback tools: Surveys and focus groups.
- Baseline audits: assess current sustainability practices and knowledge.

**Define phase:** setting cultural goals

- Develop clear sustainability goals that align with the organization’s values and mission.
- Example: “How might we engage 80% of club members in circular initiatives within one year?”

**Metrics:**

- Participation rates in sustainability programs.

- Staff and athlete awareness levels measured through pre- and post-training surveys.

**Develop phase:** implementing engagement programs

- Launch training sessions on circular economy practices for staff, volunteers, and athletes.
- Form a “Green Team” tasked with leading circular initiatives within the organization.

**Deliver phase:** scaling and celebrating results

- Roll out programs across facilities and measure success using KPIs.
- Highlight progress through events, reports, and success stories to reinforce a sustainability culture.

## 6.2. *Strengthening Resilience through Circularity*

Circular economy principles can help organizations enhance their resilience against economic, environmental, and social challenges by optimizing resource use and reducing dependencies.

**Strategies:**

- **Resource diversification:** identify opportunities to reduce reliance on single-use resources by adopting circular alternatives.

*Example:* A sports organization transitions from single-use plastic bottles to refillable aluminium bottles, cutting costs and reducing waste.

- **Collaborative networks:** build partnerships with local businesses, governments, and NGOs to share resources and knowledge.

*Example:* Partnering with local waste management companies to implement a composting program for organic waste generated at sports events.

- **Future-proofing infrastructure:** design facilities and procure equipment with durability, reparability, and modularity in mind.

*Example:* Constructing modular sports facilities with materials that can be reused or repurposed during renovations or expansions.

- **Community involvement:** engage the community in sustainable practices to strengthen social cohesion and collective resilience.

*Example:* Organizing a "Sustainability Day" where community members can learn about the organization's circular initiatives and participate in workshops.

## 7. Conclusion

The integration of Circular Design (CD) principles into local and regional sports organizations marks a significant step forward in addressing today's sustainability challenges. This toolkit equips organizations with the practical tools, strategies, and methodologies to transition from traditional linear models to regenerative, circular systems.

By adopting Circular Design, sports organizations can:

- Enhance environmental stewardship. Reduce waste, optimize resource use, and embrace regenerative practices that actively contribute to environmental sustainability.
- Strengthen economic resilience. Lower costs through energy efficiency and waste reduction, while exploring innovative circular business models that create new revenue streams.
- Foster social impact. Build stronger connections with communities, promote inclusivity, and inspire collective action toward shared sustainability goals.

These outcomes not only align with global sustainability frameworks like the United Nations Sustainable Development Goals (SDGs) but also reinforce the essential role of sports organizations as community leaders in driving meaningful change.

### Call to action: lead the change

This toolkit serves as a starting point for sports organizations to take action and make sustainability a core part of their mission. By following the structured Double Diamond framework, organizations can:

**Discover:** identify key challenges through data collection, stakeholder engagement, and resource mapping.

**Define:** set measurable goals that prioritize actionable solutions.

**Develop:** prototype and test circular initiatives, learning from real-world applications.

**Deliver:** scale successful solutions to achieve long-term impact.

Every step forward contributes to building a more sustainable future for the sports sector. This is an opportunity to lead by example, inspire communities, and demonstrate that sports organizations can be at the forefront of innovation and regeneration.

### Looking ahead

The journey toward sustainability is ongoing and dynamic. By embracing Circular Design principles, sports organizations can create a legacy of environmental, economic, and social excellence. Collaboration, creativity, and commitment will be the key drivers of this transformation.

We encourage all stakeholders—leaders, staff, athletes, and community members—to actively engage in this journey. Together, we can redefine the role of sports as a powerful force for positive societal and environmental impact, ensuring that future generations inherit a thriving planet.

## 8. The Path Forward

By implementing this toolkit, sports organizations can position themselves as trailblazers in sustainability, setting a powerful example for their communities, stakeholders, and the broader sports industry. Through the adoption of Circular Design principles and the structured, iterative Double Diamond approach, organizations are empowered to address environmental, economic, and social challenges systematically. By identifying sustainability gaps, piloting innovative solutions, and scaling successful initiatives, they can achieve lasting impact and ensure a meaningful contribution to the global sustainability agenda, including the UN Sustainable Development Goals (SDGs) and the European Green Deal.

The evaluation tools provided in this toolkit play a pivotal role in ensuring that sustainability efforts are measurable, transparent, and scalable. By employing Key Performance Indicators (KPIs) across environmental, economic, and social dimensions, organizations can monitor progress effectively:

- Environmental KPIs track reductions in waste generation, energy consumption, carbon emissions, and water usage.
- Economic KPIs measure cost savings, operational efficiencies, and revenue generation through circular business models.
- Social KPIs assess community engagement, behavioural changes, and inclusivity within sustainability initiatives.

This measurable progress fosters transparency and accountability, building trust among stakeholders—athletes, fans, volunteers, sponsors, and governing bodies—while attracting new partners, sponsors, and funding opportunities that align with sustainability priorities.

Collaboration is the cornerstone of systemic, long-term change. Sports organizations can leverage their unique position in society to form cross-sector partnerships with businesses, governments, NGOs, and educational institutions. These partnerships enable the pooling of knowledge, expertise, and resources, accelerating the implementation of circular solutions. By establishing regional coalitions, clubs can amplify their efforts, share best practices, and collectively drive a unified sustainability agenda, creating widespread, positive impact that extends beyond their immediate operations.

Moreover, sports organizations have a unique ability to empower and inspire communities. With their strong community presence and influence, they can become drivers of behavioural change.

Through initiatives such as:

- Educational campaigns that promote sustainability awareness and action,
- Visible, community-driven projects like zero-waste events, composting systems, and resource-sharing programs, and
- Inclusivity-focused activities that ensure marginalized and underrepresented groups participate in circular economy solutions, organizations can install circular values and behaviours among athletes, fans, volunteers, and local stakeholders. These efforts not only foster greater environmental responsibility but also build a shared sense of ownership and pride in the sustainability journey.

By embracing Circular Design principles, sports organizations will achieve tangible benefits:

- Reducing their environmental footprint through energy efficiency, waste minimization, and regenerative practices,
- Improving economic resilience by reducing costs, optimizing resource use, and exploring new revenue models, and
- Strengthening social cohesion by fostering inclusivity, engagement, and shared responsibility for sustainability goals.

The IDEATION project equips sports organizations with the tools, frameworks, and methodologies to lead by example, positioning them as influential agents of positive societal change. By taking decisive action today, these organizations not only contribute to a sustainable, regenerative future but also build resilience and inspire generations of athletes, fans, and communities to embrace sustainability as a way of life.

This is more than a call to action—it is an opportunity for sports organizations to drive meaningful change, leaving a legacy of environmental stewardship, economic responsibility, and social empowerment that will benefit present and future generations.

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## 10. Annexes

### *Annex – 1: Life Cycle Assessment template for IDEATION project*

Aspect	Details	Description
<b>1. System Boundaries</b>	Define clear boundaries: Which processes are included? E.g., material extraction, production, transportation, use, maintenance, disposal.	
<b>2. Lifecycle Phases</b>	Identify all lifecycle phases: - Production: Manufacturing of sports equipment, synthetic turf, or facility materials. - Use: Energy use, water consumption, and wear-and-tear during operations. - End-of-life: Waste disposal, recycling opportunities.	
<b>3. Environmental Impact Categories</b>	Focus on specific environmental categories: - Carbon Footprint (CO <sub>2</sub> emissions) - Water Footprint (liters used) - Energy Consumption (kWh) - Solid Waste Generation (kg).	
<b>4. Data Collection</b>	Gather data through: - Resource mapping (energy bills, water meters, waste audits). - Supplier data on materials used. - Direct monitoring (e.g., equipment usage records, field water usage logs).	
<b>5. Tools and Software</b>	Use tools such as: - SIMAPRO or OpenLCA for in-depth analysis. - Excel-based calculators for smaller clubs. - Free carbon footprint tools like GHG Protocol or MyClimate.	
<b>6. Evaluation Metrics</b>	Metrics include: - CO <sub>2</sub> emissions per unit (kg CO <sub>2</sub> /unit of equipment or material). - Water consumption per lifecycle phase (liters/year). - Energy use reduction target (% annually). - Percentage of waste diverted from landfill (kg/year).	
<b>7. Actions for Improvement</b>	1. Replace synthetic turf with biodegradable alternatives. 2. Use recycled or upcycled materials in facility repairs. 3. Transition to energy-efficient systems (e.g., LED lighting). 4. Encourage equipment sharing or leasing to reduce production emissions.	
<b>8. Example Scenario</b>	Example: - Synthetic Turf Replacement: A club identifies the carbon footprint of its synthetic turf during the production phase. Lifecycle analysis shows biodegradable turf cuts emissions by 25%. Actions include replacing turf and creating a recycling program for the old materials.	

*\*Additional information for expansion will be included for each club as appropriate*

*Annex – 2 Circularity Gap Metrics template for IDEATION project*

Aspect	Details	Description
<b>1. System boundaries</b>	Define boundaries: Focus on sports facilities, events, and equipment. Example: Materials used during events, in facilities, and end-of-life pathways.	
<b>2. Baseline assessment</b>	Measure the baseline: - Material inputs: Virgin vs recycled materials. - Waste outputs: Landfill, recycling, reuse, and composting rates.	
<b>3. Material flow mapping</b>	Map resource flow: - Identify inflows: Raw materials, equipment, and energy sources. - Outflows: Waste streams (organic, plastic, metals). - Leakage points: Where materials are wasted or downcycled.	
<b>4. Circularity measurement categories</b>	Categories for measurement: - Reuse Rate: % of materials reused. - Recycling Rate: % of materials recycled. - Waste Diversion Rate: % of waste diverted from landfills.	
<b>5. Data collection</b>	Gather data from: - Waste audits (bins, event cleanup logs). - Supplier data (material origin). - Inventory management systems for equipment life cycles.	
<b>6. Tools and Software</b>	Use tools like: - Material Flow Analysis software (e.g., STAN). - Waste diversion calculators. - Basic Excel templates for tracking circularity KPIs.	
<b>7. Metrics for Evaluation</b>	Metrics include: - % of materials reused/recycled. - Waste reduction percentage over time. - Proportion of virgin vs recycled materials in use.	
<b>8. Actions for Improvement</b>	1. Transition to reusable event equipment (e.g., reusable cups). 2. Implement waste sorting systems to increase recycling. 3. Establish partnerships with vendors for take-back programs. 4. Create composting solutions for organic waste.	
<b>9. Example scenario</b>	Example: At a club-hosted event, material mapping shows 60% of waste is plastic. Actions include switching to reusable food containers and compostable packaging, increasing diversion rates to 80%.	

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*Annex – 3 Energy and Water Audits template for IDEATION project*

Aspect	Details	Description
<b>1. Audit scope</b>	Define scope: - Facilities: Clubhouses, gyms, fields. - Equipment: Lights, HVAC, irrigation systems. - Events: Energy and water consumption during events.	
<b>2. Baseline measurement</b>	Establish the baseline: - Collect historical energy bills (monthly/yearly). - Measure water consumption through meter logs. - Use benchmarking to compare with similar facilities.	
<b>3. Areas of Consumption</b>	Identify consumption areas: - Energy: Lighting, heating, ventilation, air conditioning (HVAC), appliances. - Water: Irrigation, restroom facilities, cleaning activities.	
<b>4. Tools and Data Collection</b>	Gather data from: - Smart meters and monitoring devices. - Manual logs of equipment usage and facility inspections. - Water flow meters and leak detection tools.	
<b>5. Energy and Water Metrics</b>	Metrics include: - Total energy consumption (kWh/year). - Total water usage (Liters/year). - Renewable energy share (%) and water recycling rates (%).	
<b>6. Identifying inefficiencies</b>	Spot inefficiencies: - Energy: Outdated lighting, HVAC overuse, phantom loads. - Water: Leaks, over-irrigation, inefficient restroom fixtures.	
<b>7. Actions for Energy Optimization</b>	<ol style="list-style-type: none"> <li>1. Upgrade to LED lighting systems.</li> <li>2. Install smart thermostats and energy management systems.</li> <li>3. Replace old HVAC systems with energy-efficient alternatives.</li> <li>4. Promote renewable energy integration (e.g., solar panels).</li> </ol>	
<b>8. Actions for Water Efficiency</b>	<ol style="list-style-type: none"> <li>1. Implement smart irrigation systems to monitor water use.</li> <li>2. Replace faucets with low-flow fixtures.</li> <li>3. Install water recycling systems for field maintenance.</li> <li>4. Fix leaks and optimize cleaning practices.</li> </ol>	
<b>9. Example scenario</b>	Example: An energy audit reveals excessive energy use due to outdated lighting. By upgrading to LED systems, the club reduces energy consumption by 30% annually, saving €5,000.	

*\*Additional information for expansion will be included for each club as appropriate*

*Annex – 4 Economic Feasibility Analysis template for IDEATION project*

Aspect	Description	Current State	Proposed State	Notes
<b>Baseline costs</b>	Current costs of energy, materials, and waste systems.			E.g., current annual energy cost = €10,000
<b>Solution costs</b>	Upfront investment for sustainable solutions (e.g., solar panels, recycling).			E.g., upfront cost for LED lights = €5,000
<b>Savings estimate</b>	Projected annual savings (e.g., energy savings, reduced waste fees).			E.g., €3,000 annual energy savings expected
<b>Payback period</b>	Time needed to recover investment (in years).			Payback period = Solution Cost / Annual Savings
<b>ROI (%)</b>	Return on Investment calculation.			ROI = (Annual Savings / Solution Cost) * 100
<b>Scenario analysis</b>	Different adoption scenarios (low, medium, high impact).			Low impact = 10%, Medium = 30%, High = 50% savings

*\*Additional information for expansion will be included for each club as appropriate*

*Annex – 5 Circular Business Model Evaluation template for IDEATION project*

Aspect	Description	Current State	Proposed State	Notes
<b>Model type</b>	Leasing, sharing platforms, repair systems, or recycling services.			E.g., leasing sports equipment instead of purchasing outright.
<b>Revenue streams</b>	Income from leasing, shared use, or repair services.			Revenue from shared facilities or equipment rental fees.
<b>Cost reduction</b>	Savings in procurement, maintenance, and disposal.			E.g., reduced maintenance costs from sharing equipment.
<b>Lifecycle extension</b>	How long equipment or materials are extended through reuse.			E.g., extending equipment use from 2 to 5 years through repairs.
<b>Scalability potential</b>	Feasibility of implementing the model across regions.			Potential for scaling the leasing or reuse model to other facilities.

*\*Additional information for expansion will be included for each club as appropriate*

*Annex – 6 Community Impact Assessments template for IDEATION project*

Aspect	Description	Current State	Proposed State	Notes
<b>Participation rates</b>	Number of participants involved in the initiative.			E.g., 60% of community attended events.
<b>Behavioural change</b>	Percentage of community adopting circular practices.			E.g., 50% reduction in single-use items.
<b>Inclusivity</b>	Engagement of underrepresented community groups.			E.g., Target youth clubs or marginalized groups.
<b>Community satisfaction</b>	Stakeholder feedback scores on initiatives.			E.g., Average satisfaction score = 85%.

*\*Additional information for expansion will be included for each club as appropriate*

*Annex – 7 Social Surveys and Feedback Tools template for IDEATION project*

Aspect	Description	Pre-Survey Data	Post-Survey Data	Notes
<b>Knowledge change</b>	Awareness of circular practices before and after the initiative.			E.g., 40% → 80% awareness increase.
<b>Satisfaction scores</b>	Feedback scores on initiative impact (scale 1–10).			E.g., Satisfaction average score = 9/10.
<b>Adoption rate</b>	Percentage of community adopting suggested circular practices.			E.g., 60% adoption rate.
<b>Suggestions for improvement</b>	Feedback and ideas for refining programs.			E.g., Include more water refill stations.

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