Deliverable B.5.3

Report about the lessons learnt replicability from the pilot tests

Version 1.0

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Introduction

LIFE TACKLE replicability and transferability strategy is implemented through Action B5 "Transfer and replication of project results and uptake of project results in EU policies."

One of the keys aims of Action B5 is to multiply the impacts of the projects by replicating and transferring the project results toward additional entities, regions, and countries through concrete and parallel activities.

Deliverable B5.3 aims at assessing and describing the replicability potential that emerged from the pilot tests carried out under action B1 "Validation of Guidelines through pilot tests in stadiums".

So far, a promising number of pilot tests have been carried out and have achieved a certain progress. However, in many cases the COVID-19 pandemic hindered their full implementation, preventing a substantial impact assessment and consequently also the assessment of their replicability potential.

Practices on the Operational Management of Football Events

OM/E4 and OM/E12: Separate waste collection and recycling and composting program (chapter 3.2.2.6 of the TACKLE Guidelines)

Replicability potential: MEDIUM-**HIGH**

Separate waste collection, as a rather common practice in many European households is making its way into stadiums, too, as it is proven by the TACKLE project. Indeed, the waste generated in the stadium can easily be aggregated to that generated in households and commerce. Therefore, the choice of the different waste fraction to collect separately should be taken considering the local waste management regular practices (which are the fractions that are normally collected separately in that Municipality) and the local waste facilities.

The introduction of a system of separate waste collection has to be set up both in the common areas open to the public and in the technical areas reserved to staff and service providers in order to cover the overall stadium's perimeter. Since modern stadiums are rather spacious, the technical solutions regarding bins disposition were not difficult to be found.

In order to set up an efficient waste management collection system during football events, it is necessary to engage different actors like event organiser, venues and stadium authorities, sites owners and host cities, hospitality services and licensed souvenir providers, commercial partners, concessions stand operators, cleaning service providers, waste management operators, etc.

LIFE TACKLE replicated this pilot test in several stadium of different countries: National Arena, Bucharest (RO); Roi Baudouin, Brussels (BE); Luigi Ferraris, Genoa (IT); Dragão Stadium, Porto (PT) and Tele2 Arena, Stockholm (SE). However, despite a general positive feedback was obtained by the adoption of this operational management practice, different results were achieved.

The different results were due to the different level of synergies developed among stadiums stakeholders. The more event organisers were able to successfully involve different partners, the better the results.

From an economic point of view, the engagement of a sponsor that can provide the waste bins as done in Romania or the support received by the municipality as done in Italy allows to reduce the costs connected to the implementation of the separate waste collection. Nevertheless, in Romania, the fact that synergies and cooperation with recyclers could not be set up hindered higher economic gains.

Moreover, the replicability potential of this pilot test increases even more if baseline data is known in advance, which avoids the need of a waste composition analysis. Thanks to the analysis conducted during LIFE TACKLE next stadiums will not need to assess the baseline scenario considering the high similarities among stadiums.

The replicability potential can also be marked as high in case of high environmental awareness among the visitors. In case of cities and regions where the environmental awareness is high, it wouldn't take much for the visitors the get used to selective collection in stadiums and would adhere to the new practice quickly. However, introduction of separate collection needs to be accompanied by communication campaigns, activities and visuals.

This aspect is strictly linked with the importance of involving the municipalities in the waste management process. During LIFE TACKLE, we faced several barriers in Sweden considering that citizens were not accustomed to separate waste collection considering that incineration is the most diffused practice to manage waste. In this case, stronger communication activities (appropriate infographics and signage indicating the different types of waste being accepted in the bins, etc.) are needed to successfully implement the separate waste collection system.

OM/E14: Donation of unused prepared food (chapter 3.2.2.9 of the TACKLE Guidelines)

Replicability potential: HIGH

In order to eliminate food waste, event organisers can redirect all leftovers to charities. Eliminating food waste, focusing especially on hot dishes such as pasta, meat, fish and vegetables cooked for the VIP areas, but also on unsold fresh sandwiches and packaged snacks with near expiry date from the stadium kiosks and bars which would have to be thrown out after matches, allow event organisers to avoid waste production diverting resources from landfills and incinerators extending their life and consequently reducing greenhouse gas emissions.

The replicability potential depends on the existing policies and operations in stadiums and those of catering services (sometimes contractors). Nevertheless, people in need and charities are present all over the world, hence, it should be quite feasible for every other stadium to implement a similar operational management practice.

It is extremely important boosting the synergies with some charity associations, parishes, food banks or similar which would regulate the donation of the remaining food at the end of each match.

OM/E18: Reusable cups for drinks (chapter 3.2.2.12 of the TACKLE Guidelines)

Replicability potential: MEDIUM-**HIGH**

The objective of this pilot test was eliminating single-use plastics tableware, bottles, glasses and cups. The underlying idea was to test and take into consideration several possible alternatives. The first one would be the distribution of reusable cups with a return fee: supporters would be incentivised to return the used cup and reclaim the deposit fee or have another drink without paying the deposit again.

While in the football world this practice is not so common, many festivals, concerts, sport events and similar are already good examples of how such schemes work in practice. In any case, for a successful implementation of such a project, the event organiser should ensure a tailor-made solution which would comply with different yet specific circumstances that a football game implies.

This particular pilot test was proved to be rather easy to run and the entire practice easy to be implemented. Several different important factors played an important role in its enrolment. Above all, reusable cups recently became a staple principle in organising festivals, concerts and any other kind of mass events. This implies that the visitors are rather accustomed already to this practice. Furthermore, the key factor that was proven to have driven this pilot forward was the fact that a company which has experience in this particular practice was brought in. There is a large pool of national or international companies providing such services, something that can facilitate everyone's effort in "greening" a sport or a music event. A mutually beneficial business model can easily be achieved and it can greatly improve the environmental performance of events.

The replicability potential can be even bigger if sponsorship and similar deals are considered as done in Romania by LIFE TACKLE. Many multinational companies operating in Europe are looking for potential opportunities to present their products and services as a green one. Their sponsorships can easily cover certain costs that might occur during the implementation of such a practice.

OM/E21: Reuse of banners (chapter 3.2.2.20 of TACKLE Guidelines)

Replicability potential: MEDIUM

This operational practice is easily replicable in other locations and for any stadium or club that has advertising banners. In fact, Advertising and information dissemination in stadiums may involve promotional objects such as physical banners and other accessories.

The material of these advertising banners is mostly made of PVC (polyvinyl chloride), with physical characteristics of durability, flexibility, and low flammability and this material can be valued by finding more environmentally friendly solutions beyond disposal.

Reuse of banners is clearly the most sustainable practice. Segregation of benches for safety and protection of fans, protection of spaces susceptible to infiltration and in the operation and management of the stadium as protection of turnstiles are just some example of the way that banners can be reused within the stadium's perimeter.

Donations to employees or entities and institutions that are interested in the reuse of this material) can be another solution. Lastly, considering the high calorific value of the material, energy recover should be preferred to landfill disposal.

Even though the transition towards digital communication is consistently reduce the quantity of physical banners, according to LIFE TACKLE, annually about 5,000 m^2 to 6,000 m^2 of advertising banners, which correspond to between 2,000 kg and 2,500 kg of PVC that would be disposed of, is produced in a stadium.

Other stadiums should start adopting reuse of banners in the short run, but at the same time they might start to test alternatives and other initiatives such as upcycling.

OM/SM9: Feasibility assessment of installing photovoltaic panels on top of the stands (chapter 3.2.3.12 of the TACKLE Guidelines)

Replicability potential: HIGH

With the aim of reducing dependence on diesel generators, and enhancing energy efficiency of operations while limiting emissions, during LIFE TACKLE, Paolo Mazza Stadium, Ferrara (IT) assessed the feasibility, both technical and economical, of installing photovoltaic panels in the stadium to generate solar energy to feed into the power network.

The replicability potential is very high, since the feasibility study can be easily conducted by a provider of photovoltaic panels free of charge. It is important to notice that photovoltaic plants are not only of interest for new buildings, but they can also be retrofitted to existing sports facilities. However, the potential for turning the output of the feasibility study in practice depends on the commitment of the organization and economic availability. Accordingly, before conducting the feasibility study, it is important to assess the interest of the stadium manager in installing a photovoltaic system in the stadium and making sure all the necessary data is known and available. Performing preliminary feasibility studies are very easy to conduct if the stadium manager is able to provide all the necessary information regarding the infrastructures of the stadium (such as the location, size, height, capacity of the coverage of the stadium's stands). The provider of the study does not necessarily need to visit the stadium if required information is already available. Accordingly, the feasibility study is often freely provided by local solar panels installation companies, as they are interested in supplying and installing the solar panels.

OM/SM24: Seats made of recycled material (chapter 3.2.3.1 of the TACKLE Guidelines)

Replicability potential: MEDIUM

Stadium's managers have always to substitute a significant number of damaged seats after each match (Stadio Olimpico, Rome (IT) estimated around 600 seats per year). For this reason, LIFE TACKLE promotes the adoption seats made from recycled materials instead of virgin plastic ones. In this way, stadium's managers will be able to gradually substitute all the seats in the stadium.

The fact that a provider of seats made of recycled plastics is available in the country (i.e., Revet for Italy) facilitates a lot the implementation of such a pilot test and change in stadium management. In fact, in addition to the Stadio Olimpico, also the stadium of Pontedera, Pisa (IT) installed the seats made of recycled plastics.

In order to guarantee economic feasibility, two main factors should be taken into account. The availability of a national provided is extremely important also in this case. Locally produced and supplied, it already cut certain costs associated with transport. Recycled plastic seats are not significantly more expensive than regular ones, especially if the stadium orders a large number of seats. Ordering a large number of seats in advance and stocking them could cut the costs and ensure a certain number of seats in reserve.

The replicability potential of such a pilot test heavily depends on the availability of recyclers in the country. Even though it was possible to recycle HDPE seats of the Arena Nationala, Bucharest (RO) (i.e., being transformed into pellets for further reuse), it was not possible to buy recycled seats. The biggest inhibitor for purchasing recycled seats and the reason why they were never purchased was the fact that the foreign company which provides the stadium with this specific type of seats ever since the stadium became operational does not produce seats made out of recycled plastic.

Nevertheless, since the recycling technology advanced rapidly, more and more companies are becoming able to provide such services.

OM/SM26: Faucet aerators (chapter 3.2.3.18 of the TACKLE Guidelines)

Replicability potential: HIGH

The installation of faucet aerators (mixture of air and water) in areas such as public bathrooms, pantries, office bathrooms and maintenance areas can reduce water consumption, avoid water scarcity and successively reduce associated costs.

Any sustainability manager, stadium or club can take advantage of a system like the one adopted in the Dragão Stadium, Porto (PT), allowing to reduce costs related to water consumption and management, as well as avoiding water scarcity.

This practice can be applied to any existing sports facility (visitors' toilets, changing rooms, bars and restaurants, administrative areas, among others). The potential for replicability is linked essentially to the acquisition and installation of equipment, but it quickly generates returns, allowing to reduce costs related to water consumption and management, as well as avoiding water scarcity.

OM/PR1: Green Power Acquisition from Renewable Energy Sources (chapter 3.2.4.1 of the TACKLE Guidelines)

Replicability potential: MEDIUM

Still on energy consumption, but to be used whether the instalment of renewables is not feasible or, in any case, not sufficient to cover the whole amount of energy required to ensure stadium's functioning, the acquisition of energy from renewable sources is a practice than can be replicated among different contexts.

While the assessment of the possibilities of acquiring green energy can be easily done by including this specific requirement in the call for offers, the actual adoption may be hindered by different factors.

The main barrier is economic. Certified green energy can be more expensive to purchase and thus, the effective coverage of the whole amount of energy consumption could not be always possible. In this case, also a partial purchase of green energy would be preferable than nothing.

In addition to the increased costs, the transition to clean energy supply is dependent on current electricity supply contracts and the availability of clean energy in a given country. These can be long and the transition to a new contract may take some time to take effect. The replicability potential will also depend on the number of suppliers and how the certification system works in each country where the purchase of clean energy is intended.

Nevertheless, whether a club decided to not buy green energy due to higher annual cost, savings may be invested for energy efficiency solutions in order to reduce the general consumption of energy. Moreover, although not choosing a 100% green energy supplier, clubs may consider the current energy supply mix which includes renewable energy sources and non-renewable energy sources adopted by the different energy suppliers.

OM/PR8: Recycled choreography products (chapter 3.2.4.8 of the TACKLE Guidelines)

Replicability potential: HIGH

The pilot test focused on purchasing and utilising choreographic materials (specifically flags) made from recycled plastics (i.e., polyethylene), instead of virgin material, to be showcased during selected football matches.

The pilot test is highly replicable and can be extrapolated to similar practices and procurement contracts for promotional material, merchandise, choreography products. Most important, price and performance of choreography items made of recycled materials are equally comparable to choreography items made of virgin materials.

This could lead to even larger environmental benefits. The high replicability of the pilot test reflects in the fact that the use of choreography and promotional materials in football, both by supporters and football clubs themselves is quite common. Nevertheless, this pilot test also showed that this kind of products made of recycled materials are available in many countries and are easy to procure for.

OM/PR6: Green procurement guidelines (chapter 3.2.4.7 of the TACKLE Guidelines)

Replicability potential: MEDIUM-**HIGH**

Adjusting procurement procedures and making them more suitable to improving indirect environmental performances through procuring greener goods and services was proven to be replicable as it requires only a modification in existing procedures instead of drafting completely new ones. These adjustments can be soft or hard. A soft approach was adopted by the Romanian Football Association (FRF). The FRF revised the existing procedure for procurements and modified the procedure. The new procedure implied a new requirement for granting contracts. If the offers could grant the same price and same quality of goods/services. like before, the contract would be given to the offer that can prove the best environmental performance. As confirmed by FRF, this new procedure does not put different green criteria as mandatory requirements, but rather a voluntary provision and could serve as an advantage for companies with better environmental performance. The way companies sending offers would prove their good environmental governance are environmental certificates.

On the contrary, Real Betis Balompié for the Benito Villamarín in Seville (Spain) and the Federazione Italiana Giuoco Calcio (FIGC) for the the Stadio Olimpico in Rome (Italy) adopted a hard approach. In this case, environmental criteria are included in all contracts with environmental impact (cleaning services, maintenance, electricity services, etc.), as these criteria fall under the compliance of legal requirements on environment. Thus, the first evaluation was carried out at economical and technical level, while the second evaluation was applied at environmental level verifying companies' compliance with these environmental criteria.

However, according to FRF, in order to have a successful procedure and maximised benefits, the market of good and services has to be suitable and adjusted o the various green requirements that are featured in the call for offers. The absence of those could hinder all the efforts one makes.

Another reflection FRF had on this pilot test was the fact that trainings and capacity building activities could be very beneficial for those working on the adjustments, but imitating and blindly adopting

various criteria from elsewhere could cause big discrepancies between the requirements and the reality of the available market.

Lastly, in order to correctly and successfully adopt green procurement, procurement department may be trained in order to fully understand all the different strategies and criteria that can be included in the call for offers.

OM/ML6: Supporters' mobility (chapter 3.2.5.6 of the TACKLE Guidelines)

Replicability potential: MEDIUM

While administering a survey in order to get insight on supporters' mobility habits and the challenges they are facing when attending games can be easily replicated, actually introducing improvements or modifications in the mobility system may be more difficult to replicate. Nevertheless, even though the survey itself does not bring any environmental benefits, it can pave the way to effective solutions. Technically speaking, a survey is easy to be conducted, but should take place well before the game, upon the arrival of supporters as the closer the time is to the kickoff the less willing the supporters are to participate. It is very important to include different age groups, gender in the survey in order to get balanced results. Surveys like these are usually well accepted by gamegoers and they are willing to participate, especially regular supporters who do the same trip at least once in two weeks.

Creating a strategy to improve supporters' mobility habits require the involvement of different stakeholders, i.e., from the local transport department to operational management department, passing through Government.

The replicability potential of a structured supporters' mobility strategy like the strategy designed for the city of Bucharest due to EURO2020 can be twofold. On the positive side, especially if a strategy was tested already, can be a gateway not only to organising an event and providing the best possible experience to the gamegoers but also maximise and valorise all the efforts a city puts into improving the mobility locally. Since many cities get to host different events attracting large number of visitors on a regular basis, the reuse of such a strategy can be quite substantial, with necessary modifications, of course. FRF reported that this strategy would be already reused in 2023 as Bucharest would be hosting the UEFA U21 EURO 2023.

Nonetheless, beside major European tournaments, this Strategy is also put on disposal for Romanian clubs using the stadium for their European home games or final games of European tournaments which usually result in a large number of visiting supporters.

Worth mentioning is the rather big added value of this pilot test for the local community. While the city of Bucharest wanted to buy 200 new EURO6 buses, this strategy made the city buy 400 of them, and furthermore, 150 electrical ones. Once the EURO 2020 is over, these buses will be incorporated into the exiting public transportation fleet.

On the other hand, what makes this Strategy not very replicable is in case of other sporting events. The reason for this is that a big part of the Strategy would not be compatible with another sporting event. The reasons for this are: different stadiums/arenas used for the other tournament, non-existence of a fan zone and similar logistical differences. The same case of difficult replicability could be applied to replicating it in a different city. However, the structure and the elements, aspects and objectives covered by this Strategy could help other cities and event organisers in drafting a suitable Strategy for themselves.

OM/ML9: Secured bike parking (chapter 3.2.5.9 of the TACKLE Guidelines)

Replicability potential: MEDIUM

The overall replicability potential definitely lies in the daily behaviour and habits of the people living in different countries and the backing strategies, available funds and similar support available for boosting cycling in cities. While building and installing a permanent secured bike park could result in certain costs, a temporary bike parking could turn into a permanent one if an agreement is reached and a cooperation between event organisers and the owner of the facility is achieved. Moreover, a mobile secured bike parking can be installed temporarily for various events. Before a football club, football association or a stadium decides to build one, it is worth including public authorities in a project of this kind. It is known that many European cities have in place strategies for a more sustainable city which often includes mobility as well. Therefore, private entities (clubs, associations, stadiums) should consult the local or regional authorities and ask for support exploring potential opportunities for collaboration (funds, financial or technical support, campaigning, etc.). While the environmental aspect would definitely be highlighted in case of this pilot test, the economic and technical aspects are something a club or stadium would need to elaborate well. Indeed, the event organiser would need to provide staff that would make the bike park secure.

GOV14: Identification and implementation of environmental KPI (chapter 3.1.7 of the TACKLE Guidelines)

Replicability potential: MEDIUM-**HIGH**

Developing baseline information on operations is crucial for tracking progress of environmental improvement initiatives, as well as for establishing updated data repositories for decision-making purposes, for identifying improvement opportunities and setting objectives.

Even though KPIs are based on the core environmental performance indicators presented in Annex IV to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), a “tailor-made” version of the KPI based on the club’s needs and activities should be draft in order to make them useful and feasible.

Adjusting environmental KPIs and making them more suitable to improving environmental monitoring through structured KPI monitoring system was proven to be replicable as it requires only a modification in KPIs instead of drafting completely new ones.

However, according to Real Betis's experience, in order to have a successful monitoring system and maximised benefits, the efforts connected to data collection have to be reasonable and adequate to the effective benefits deriving from the measurement. The absence of some data or even the enormous amount of time needed to collect them could hinder all the efforts. The selected KPIs should be customise according not to the club's needs, but also to the club's availability of data.

Conclusion

As this publication represents the third stage of the most important part of the project – testing and assessing various environmental management practices in stadiums, it gives us the underlying principles and suggestions for the multiplication and reproduction of these practices. The three stages previously mentioned started with phase one, a desk research, that revolved around collecting and identifying existing examples of good practices in Europe and beyond and compiling them into a comprehensive and structured compendium according to their nature and targeting various aspects of football games – from governance to operational management, including mobility, procurement, stadium management and the event itself among others. This stage was followed by the most demanding one – testing them in situ in cooperation with football associations, football clubs and stadiums. Having had 12 pilot stadiums adhering to the project, it promised a substantial playground for obtaining crucial results, observations and conclusions for the way forward.

Since this particular publication focused on the replicability potential of the good practices tested, the technical partners who followed their development from the very beginning, could drew the following respective conclusions in form of suggestions and required approach, not necessarily in a chronological order), suggestion which enable successful replication:

- Football entities that are not aware of their environmental performance, don't have any environmental reporting in place or have a non-existing or very poor data collection system like it was the case in several stadiums should definitely look into environmental audits and baseline measurements. While such an exercise is just a one-time activity, it can provide valuable information, data and assessment that would serve for years to come. With such a baseline information, the football entity could build a reasonable and meaningful strategy for improving its performances, while targeting the key aspects of organising football games. It could also help the football entity to position itself and compare its performances to other entities' performances. Furthermore, linking the obtained data and observations to their financial implications (water use, energy consumption, waste generation etc.) could give this activity a whole new importance in form of economics. In fact, given our experience from the TACKLE pilot tests, many of them could not achieve the desired success due to the lack of the baseline data. Therefore, such activities were proven to be the underlying intelligence necessary for successful replication.

- Following the previous conclusion, the pilot tests showed that numerous technical support providers exists, not only for conducting audits and collecting data but also interpreting them, as well as current environmental performances overall. Such external companies can set up a longer-term strategy and action plan for improving those performances through identifying the hotspots, key losses and subsequently suggesting the best solutions for achieving major improvements. Their role and service could also be a "one-time" intervention leaving the football entity to work on these improvements on their own. In terms of replicating good practices they could help the football entity adapting and modifying solutions to various circumstances and local realities.

- In order to have a football entity working independently on environmental performance improvements, its management and governing board should look into enhancing its staff's skills and knowledge of environmental processes and management in general. Such trainings and learning experiences can result in great savings and uninterrupted work on continuous improvements in the field of environmental management, as no external experts would be needed to be brought in. Such improvements would allow these football entities not only to successfully carry out and replicate a pilot test but also to turn them into a long-lasting new practice.

- One important observation made by the technical partners on the project but also the participating stadiums was the fact that successful replications can only be achieved if all relevant stakeholders are brought together. The stakeholders could include local and regional authorities, service/good providers, fan associations, sponsors and many more. Football entities should make these stakeholders aware of their intentions and look for joint undertakings as many hidden advantages could emerge during such collaborations, including sponsorships.

- Football entities should not be afraid of diving into new practices. Although desk researches are often required for such an adventure, they can result in finding one of many available technology providers, be it reusable drinking cups, seats made of recycled plastic, food collection, energy production from renewable sources etc. These external technology providers can offer tailor-made solutions for replicating any of existing practices or coming up with new ones. Once set up, these technologies can serve for longer periods, only requiring the football entity to continuously monitor them. This brings us back to that utmost importance of having trained and dedicated staff member(s) to environmental issues.

- Social acceptance turned out to be a great indicator of the efficiency of replicating any good practice. Many different ways exist to get an insight into this, surveys, interviews, questionnaires and similar. When replicating or defining new pilot tests, some technical partners suggested the football entities to run a simple, short yet more than important survey on social acceptance, or in other words, how open the visitors would be to new practices and assess their potential participation in them. Some pilot tests, especially in the field of mobility

and waste management required nan active participation of game visitors and such researches served as indicators whether conducting those pilot tests would turn out to be as successful as expected.