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# Athens Journal of Sports

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\*\*\*\*\*

The *Athens Journal of Sports (AJSP)* is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of sports and related sciences. Many of the papers published in this journal have been presented at the various conferences sponsored by the [Sport, Exercise, & Kinesiology Unit](#) of the **Athens Institute for Education and Research (ATINER)** & the [Panhellenic Association of Sports Economists and Managers \(PASEM\)](#). All papers are subject to ATINER's [Publication Ethical Policy and Statement](#).

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The current issue is the second of the eighth volume of the *Athens Journal of Sports*, published by the [Sport, Exercise, & Kinesiology Unit](#) of the ATINER under the aegis of the Panhellenic Association of Sports Economists and Managers (PASEM).

Gregory T. Papanikos, President, ATINER.



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## A Physical Activity Practice Index for Older Students and Adults

By Paul Godbout\* & Luc Nadeau<sup>‡</sup>

*This article puts forward a physical activity practice (PAP) index that could be used by older students (high school and college level) and adults who wish to monitor their PAP in order to regulate it. Authors explain the origin of the PAP index, identify PAP aspects such as frequency, duration, intensity and diversity as they relate to the index and describe the simple mechanics of its computation. Then, they discuss physical literacy (PL) awareness in terms of competence, knowledge and understanding, motivation toward PAP, and actual physical activity (PA) engagement. Regulation scenarios are presented in association with individuals' PAP awareness. Finally, a few suggestions are added with regard to tailored PAP monitoring for more engaged physical literate persons. The PAP index described is intended to help individuals monitor their PAP over time, taking simultaneously into account its intensity and volume whatever the selected activity(ies). Willingness to monitor one's PAP implies at least a minimal level of PL awareness. Besides reflecting on their PA-related knowledge and PA competency and capacities, individuals ought to understand their reasons for engaging into the regular practice of PA. Based on their answers to such questions, they can then engage into regulation scenarios with the help of monitoring instruments such as the one discussed in this article.*

**Keywords:** *physical literacy, physical-literacy awareness, physical-activity-practice awareness, FITT formula, PAP monitoring*

### Introduction

There has been over the last decade a considerable interest in the operationalization of the physical literacy (PL) construct following Whitehead's first proposals on the subject (Whitehead 1993, 2001). The PL-journey scaffold she put forward (Whitehead 2013b) involves several categories of practitioners associated with physical activity in such contexts as physical education (PE), sport education, dance education, outdoor education, recreation education and health education. Concerning the relationship between PL and PE, Whitehead (2013a, p. 32) wrote: "...physical literacy is not an alternative to physical education, nor is it in competition with physical education. Physical education is a subject area in the school curriculum while physical literacy is the goal of physical education". As individuals enter adulthood, fitness leaders and health-education practitioners take over in the promotion of regular physical activity in various areas, conditions and phases of adults' lives.

Over the years, assessment instruments have been developed to provide practitioners with physical-activity-practice (PAP) formative and/or summative

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assessment tools. For reviews, readers may consult, for instance, Biddle et al. (2011), Hickerson (2011), Hills et al. (2014), McLain and Tudor-Locke (2009) and Sylvia et al. (2014). Measurement techniques vary from the use of recording devices (accelerometers, pedometers, heart rate monitors, armbands) to the use of direct observation, self-report questionnaires or self-report activity diaries/logs.

Self-report diaries, requiring participants to record PA in real time, provide more data, especially when time intervals between recordings are shorter [15-minute intervals over three days in the case of the Bouchard's Physical Activity Record (BAR) (Bouchard et al. 1983)]. Their main disadvantage is the time and discipline required from participants who have to record their activity several times a day. Moreover, questionnaires do not require so much recording time and depend more on the recall capacity of responders. They may vary as to the variables considered (e.g., mode, duration, or frequency of PA), measures reported (e.g., activity scores, time, calories), types of data (e.g., measures of intensity, differentiating between habitual and merely recent activities, inclusion of leisure and non-leisure activity), and modalities of data recording (e.g., paper and pencil assessment, computerized questionnaire, interview) (Sylvia et al. 2014). Self-report questionnaire reliability depends on the recall capacity of responders and may therefore become questionable when lag-time exceeds several weeks (Sallis and Saelens 2000). It has been reported however that reliability is relatively high with young-to-middle aged adults, "especially when intervals between tests were one month or less" (Sallis and Saelens 2000, p. 2). These authors also report high reliability for students when data were recorded the same day. The same conclusion likely applies for adults.

The increasing attention on PL in relation with PE has resulted in the development of several assessment instruments for PL (Barnett et al. 2020, Cairney et al. 2018, Longmuir et al. 2018, Payne et al. 2013, Robinson and Randall 2017). While some are physical-competence oriented, others are more concerned with physical activity profiles. Questions have been raised as to their alignment with the four constituents of the construct (physical competence, knowledge and understanding, lifetime engagement, motivation and competence) (Robinson and Randall 2017). These authors wrote (2017, p. 44):

She [Whitehead] has further recognized the challenges associated with "assessing" physical literacy, suggesting, "charting progress is more appropriate than assessment" (p. 48). In writing about physical literacy and physical education, Whitehead (2013b) has explained that physical literacy is an individualized "personal journey," proposing that any assessment should be in relation to one's own previous assessment. She leaves no ambiguity in this regard: "there is no reference to benchmarks or comparison with others" (Whitehead 2013c, p. 45).

Far from being a passive experience, the development of an individual's PL is a learner-centered, situated, and socio-constructivist process. The goal of PE is therefore to endow the becoming adult with self-direction, self-actualization and self-regulation capacities. PAP assessment procedures briefly reviewed above tend to be used in research studies and may be seen as cumbersome in the context of an individual's every-day PA. In many cases, such measurement instruments are not

user-friendly and not necessarily conducive to a reflection on one's PA habits. There appears to be a need for a procedure that could be used in an educational set-up (PE classes) at the high school and/or college level while offering a strong carry-over value for after-school life. The purpose of this article is to put forward a physical activity practice (PAP) index that could be easily used by older students and adults who need or wish to monitor their PAP in order to regulate it. After presenting the background of the index, the PAP aspects involved and its computation, the authors discuss the regulation of one's PL level, considering PL awareness, motivation toward PAP, and regulation scenarios.

### **The Physical Activity Practice Index**

In this article, the authors have elected not to consider the assessment of PL per se but the regular self-assessment of one of its components, physical activity practice (PAP) as a reflection of one's lifetime engagement. Moreover, the authors' objective is to come up with a self-monitoring instrument that would help students at the high-school and college levels and adults regulate their weekly, monthly and yearly practice of physical activity, taking into account all kinds of contingencies. In their search for a suitable instrument, the authors were inspired by the Team-Pentathlon, a program developed by a group of PE teacher-educators from Laval University in Quebec City, Canada (Martel et al. 2011).

#### *Origin of the Physical Activity Practice Index: The Team Pentathlon*

In schools, several practitioners and specialists have proposed different methods involving students in assessing their PAP (Westerterp 2009). These methods have always had as a common characteristic the measurement of the volume of practice (quantitative measures) such as the duration and the frequency of exercise bouts. However, given the great diversity of activities selected and also the fact that all these activities did not have the same energy requirement, some studies have also attempted to bear in mind the type of physical activity (qualitative measure) in the calculation. Martel et al. (2011) proposed a calculation formula that considers the quantity and type of physical activity practice in the *Team Pentathlon* program. In this eight-week program, each student is required to indicate the frequency, duration, and type of physical activity they perform daily. Each activity is weighted according to the average level of energy expenditure (METs) while performing the activity. By multiplying the weight (or correction factor) by the duration, the authors defined a unit called *Pentathlon Hour (PH)*. The main physical activities practiced by students are therefore classified into one of four weight-categories (1.0; 0.75; 0.5; 0.25). More intense activities like running for example have a weight of 1, meaning that 60 minutes of running is equal to 1 PH, while less intense activities as walking, for instance, has a weight of 0.25, meaning that the same duration of 60 minutes of walking is equal to 0.25PH. In addition, activities to be selected by students are classified according to five type-categories: (1) aquatics; (2) team sports and games; (3) endurance (aerobic)

activities; (4) individual sports and games or artistic activities; (5) dual sports and games. Over a period of eight weeks, students have to achieve individual PAP standards formulated in terms of PHs. A report on the number of PHs performed by the students is available every other week so that they can regulate their practice. The particular standard to be achieved over the 8-week period (between 20-30 PHs) is chosen by the students before the start of the program.

Peer influence and social network is an important part of adopting regular physical activity for students (Girard et al. 2021). In the *Team Pentathlon* format, students are regrouped in teams composed of 5 or 6 students so they can count on each other to schedule PA bouts. In addition to each student setting his or her personal PAP goal, team members also determine the standard they want to collectively achieve. Depending upon the number of PHs achieved AND the number of activity-categories in which the minimum number of PHs is reached, one of five standards can be claimed (excellence, gold, silver, bronze or honor). Thus, the program is designed to encourage not only PAP in general but also a diversity of preferences in terms of types of activity. The authors of Team Pentathlon also developed an adaptation of their program for adults (Gagnon et al. 2021). The simplicity of the measurement of PAP in this program could serve as a model for establishing a simple PAP index for each individual who would therefore assess his or her individual practice. Such an assessment would be criterion-related rather than normative. In other words, and in line with Whitehead's recommendations referred to earlier (Robinson and Randall 2017), any assessment by individuals would be personal and in relation with their own objectives.

#### *Aspects of Physical Activity Practice to be Considered*

Based on their knowledge of acute and chronic effects of physical activity on the human body, exercise physiologists have, for a long time, pinpointed various PA characteristics that can be considered. For instance, several decades ago, Bouchard et al. (1974) published a textbook intended for senior-high-school and college level students registered in physical fitness and well-being PE classes. They identified five distinct dimensions of regular PA practice: nature, form, intensity, duration and frequency. While the *nature* of the activity refers to the kind of activity performed, like sport, dance and muscular exercises, its *form* refers to the continuous or discontinuous way one individual exercises. For instance, one may run or swim without interruption for a long period of time or elect to exercise more strenuously, alternating bouts of exercise with rest periods, a form referred to as interval training. *Intensity* may refer to a percentage of maximal capacity of an individual in terms of METs or O<sup>2</sup> uptake, or to a percentage of maximal muscle strength in the case of muscular exercises. *Frequency* usually refers to the number of times per week, while *duration* refers to the time length of one PA session.

Over the years, the combination of such aspects of PA practice have come to be known as the FITT formula (Corbin et al. 2014, Corbin et al. 2018). As mentioned above, **F** and **I** stand for *frequency* and *intensity*; the first **T** stands for *time* (duration) and the second **T** stands for *type*, meaning the kind of activity

selected in view of a specific outcome (for instance, cardiovascular endurance, muscular endurance or flexibility). With regard to the type of activity, it is thus possible to categorize most activities normally practiced by adults in order to help them determine their own standards of practice (FITT-formula specifics) to maintain a healthy lifestyle (Daley and Duda 2006). Variations as to the type of activity selected will be qualified as *diversity*. In developing a calculation procedure for monitoring PA practice, the authors established, as a premise, that it should ideally take four elements into account as they are associated with healthy and effective physical activity: frequency, duration (or time), intensity and diversity. Combinations of frequency, duration and intensity will make up a volume of PA whereas diversity will reflect variations as to the type of activity selected.

### Frequency and Duration

Considering all physical activities performed by an individual that can be related to improving one's health should be that individual's first preoccupation if he/she wishes to improve or maintain a healthy lifestyle (Barisic et al. 2011, Delisle et al. 2010, Rodgers and Sullivan 2001). It is the first and easiest method to assess one's progress and confirm the regularity of one's practice over a certain period of time (one week, one month or one season). As is the case for Team Pentathlon, it seems important and more practical to determine a minimum period of time of five minutes per activity as the minimum standard for that activity to be beneficial for health, even though the authors recognize that every short bouts of PA (taking the stairs instead of the elevator for example) can have a beneficial effect. Frequency and regularity are, in fact, essential for health (Lustyk et al. 2004, Musich et al. 2017). For example, three short 5-minute walks a day five times a week (total duration of 75 minutes) are more efficient than one 2-hour walk only once a week. On the other hand, excessive duration for a PA session might have negative effects on health (Zhu et al. 2019). The duration of each PA session should provide the person with a well-being feeling and allow him/her to fulfill his/her normal daily activities. A gradual increase of PA-session duration helps prevent possible overuse injuries (Brenner and the Council on Sports Medicine and Fitness 2007).

### Physical Activity Type

In Team Pentathlon, one main objective of the program is to help students recognize differences in levels and type of activity performed to correctly assess benefits on physical health. Weighting the PA type into four groups according to the average level of energy expenditure while performing the activity, and thus influencing the calculation of Pentathlon Hours (PH), is a way to help students understand differences between and within activities. Moreover, cardiovascular activities such as running might also be practiced at different paces which would lead to different effects on health depending on the intensity in which they are performed. Finally, understanding the difference and differential impact on health/fitness between types of activities, such as team sports or muscular activities, probably is one of the most important knowledge for adopting a healthy and active lifestyle (Acree et al. 2006).

The determination of four intensity-levels of physical utilitarian and leisure activities to create a PAP index for older students and adults is based on the work of Martel et al. (2011) on the Team Pentathlon. This led the authors of the present article to defining a unit of measurement named Physical-Activity-Practice Corrected Hour (PAP-CH). The simplicity of the calculation of such an index should make it easier for more adults to determine their level of PA practice. However, as alluded to earlier and also stated by Ryan and Deci (2020), individuals must establish their own PAP-CH standard based on their life context rather than simply seek to achieve a “one size fits all” standard.

Unlike Martel et al. (2011), who restrain students to certain type of activities, the authors consider it important trying to include all forms of PA in the calculation of the adult-oriented PAP index instead of limiting the monitoring to PAs done by younger students. Activities are classified into four intensity levels based on MET values as determined by the Compendium of Physical Activities (Ainsworth et al. 2011) for each type of activity (see Table 1A for instance). PAs involving different levels of energy expenditure are assigned different correction factors: 10.0 METs or more get a corrected value of 1.00; 6.0 to 9.9 METs have a corrected value of 0.75; 4.00 to 5.99 METs get a 0.5-correction value; finally, 2.5 to 3.99 METs get a 0.25-correction value. Readers will note that activities with a requirement of less than 2.5 METs are not considered in the calculation of the PAP index since they are considered too low on energy expenditure for improving physical fitness.

**Table 1A.** *Aquatic Activities: Intensity Levels\* and Corresponding Correction Factors for PAP Index*

2.5 to 3.99 METs (0.25)	4.00 to 5.99 METs (0.50)	6.0 to 9.9 METs (0.75)	10.0 METs and over (1.00)
Canoeing, rowing light effort Swimming, treading water, moderate effort, general Diving, springboard or platform Sailing, Windsurfing light Water volleyball	Paddle boat Swimming, leisurely, not lap swimming, general Canoeing, rowing moderate effort Swimming laps, freestyle, front crawl, slow, light or moderate effort Water walking, moderate effort, moderate pace	Swimming, crawl, fast speed, ~75 yards/minute, vigorous effort Water polo Skindiving, scuba diving, general Water walking, vigorous effort, brisk pace	Swimming, butterfly, general Canoeing, Rowing, kayaking, competition, >6 mph, vigorous effort Windsurfing or kitesurfing Swimming, breaststroke training or competition

\*Adapted from Ainsworth et al. (2011).

Activities were assembled into six groups as follows: (a) aquatic activities; (b) team sports and games; (c) endurance (aerobic) activities; (d) individual sports and games or artistic activities; (e) dual sports and games; and (f) calisthenics and muscular activities. Activities listed in Tables 1A to 1F serve to illustrate different intensity levels of PA practice according to each group of exercise. A comprehensive listing of all potential physical activities would be beyond the scope of this article. Readers can draw on these activities to determine which group would better suit a non-listed activity. For example, a person who gardens

45 minutes every day may consider this activity to be within the *Calisthenics and muscular activities* group (Table 1F), at a 0.25-correction level.

**Table 1B.** *Team Sports and Games: Intensity Levels\* and Corresponding Correction Factors for PAP Index*

<b>2.5 to 3.99 METs (0.25)</b>	<b>4.00 to 5.99 METs (0.50)</b>	<b>6.0 to 9.9 METs (0.75)</b>	<b>10.0 METs and over (1.00)</b>
Volleyball, non-competitive, 6 - 9-member team, general Frisbee playing, general Croquet Softball, practice Coaching, football, soccer, basketball, baseball, swimming, etc. Curling Football, touch, flag, light effort	Basketball, non-game, general Basketball, shooting baskets Volleyball, competitive, in gymnasium Softball or Baseball	Ice Hockey competitive Soccer, competitive Basketball competitive Football, competitive Flag football Ultimate frisbee Handball competitive Lacrosse Beach volleyball Field hockey Rugby	

\*Adapted from Ainsworth et al. (2011).

**Table 1C.** *Endurance (Aerobic) Activities: Intensity Levels\* and Corresponding Correction Factors for PAP Index*

<b>2.5 to 3.99 METs (0.25)</b>	<b>4.00 to 5.99 METs (0.50)</b>	<b>6.0 to 9.9 METs (0.75)</b>	<b>10.0 METs and over (1.00)</b>
Bicycling, leisure Stair climbing, slow pace Walking, to work or class or for pleasure Video exercise workouts, TV conditioning programs (e.g., cardio-resistance), moderate effort	Bicycling, moderate pace Rowing, stationary ergometer, general, vigorous effort Elliptical trainer, moderate effort Stationary bicycling light-to-moderate effort Aerobic, step, low impact Jog/walk combination Walking, 3.5 mph, brisk speed, not carrying anything Hiking, cross country Skating, moderate effort	Bicycling, vigorous effort Mountain bicycling, general Stair-treadmill ergometer, general Health club conditioning classes Rowing, stationary, moderate effort Cross country skiing moderate effort Aerobic, general Running, cross country Jogging, general Roller Skating Walking for exercise fast pace	Bicycling, mountain, competitive, racing Stationary bicycling very vigorous effort Running, 10km/h and faster Rollerblading, In-line skating, 24.0 km/h maximal effort Rope jumping, fast pace, 120-160 skips/min Speed skating competitive Cross-country skiing, skating

\*Adapted from Ainsworth et al. (2011).

**Table 1D.** Individual Sports and Games or Artistic Activities: Intensity Levels\* and Corresponding Correction Factors for PAP Index

<b>2.5 to 3.99 METs (0.25)</b>	<b>4.00 to 5.99 METs (0.50)</b>	<b>6.0 to 9.9 METs (0.75)</b>	<b>10.0 METs and over (1.00)</b>
Hacky sack Juggling High ropes course, multiple elements Gymnastics, general Golf, using power cart Trampoline, recreational Bowling Tai chi, qi gong, general Archery, non- hunting Track and field (e.g., shot, discus, hammer throw)	Dance, ballet, modern, or jazz, general Golf walking, pulling/carrying clubs Skateboarding, competitive, vigorous effort Track and field (e.g., high jump, long jump, triple jump, javelin, pole vault) Rock climbing, ascending or traversing rock, low- to-moderate difficulty Boxing, punching bag	General dancing (e.g., disco, folk, Irish step dancing, line dancing, polka, contra, country, ballet, modern, or jazz, performance, vigorous effort) Track and field (e.g., steeplechase, hurdles) Orienteering Boxing, sparring	Ballroom dancing, competitive, general Boxing, in ring, general

\*Adapted from Ainsworth et al. (2011).

**Table 1E.** Dual Sports and Games: Intensity Levels\* and Corresponding Correction Factors for PAP Index

<b>2.5 to 3.99 METs (0.25)</b>	<b>4.00 to 5.99 METs (0.50)</b>	<b>6.0 to 9.9 METs (0.75)</b>	<b>10.0 METs and over (1.00)</b>
	Fencing Paddleball, casual, general Tennis, doubles Wrestling Badminton, social singles and doubles, general Martial arts, different types, slower pace, novice performers, practice Tennis, hitting balls, non-game play, moderate effort	Paddleball, competitive Racquetball, competitive Tennis, singles Boxing, sparring Squash, general Badminton, competitive Racquetball, general	Boxing, in ring, general Racquet sports competitive Jai alai Martial arts, different types, moderate pace (e.g., judo, jujitsu, karate, kick boxing, tae kwon do, tai-bo, Muay Thai boxing)

\*Adapted from Ainsworth et al. (2011).



**Table 1F.** *Calisthenics and Muscular Activities: Intensity Level\*s and Corresponding Correction Factors for PAP Index*

<b>2.5 to 3.99 METs (0.25)</b>	<b>4.00 to 5.99 METs (0.50)</b>	<b>6.0 to 9.9 METs (0.75)</b>	<b>10.0 METs and over (1.00)</b>
Video exercise workouts, TV conditioning programs moderate effort Yoga, Power Activity promoting video game (e.g., Wii Fit), moderate effort Calisthenics (e.g., push-ups, sit ups, pull-ups, lunges), light or moderate effort Home exercise, general Resistance (weight) training, multiple exercises, 8-15 repetitions at varied resistance Pilates, general Therapeutic exercise ball, Fit Ball exercise	Resistance training (weightlifting, free weight, nautilus or universal), power lifting or body building, vigorous effort Video exercise workouts, TV conditioning programs (e.g., cardio-resistance), vigorous effort Health club exercise, general Army type obstacle course exercise, boot camp training program, resistance (weight) training, circuit training, moderate effort	Calisthenics (e.g., push-ups, sit ups, pull-ups, jumping jacks), vigorous effort Circuit training, including kettlebells, vigorous intensity Health club exercise, conditioning classes Activity promoting video/arcade game vigorous effort	

\*Adapted from Ainsworth et al. (2011).

### Diversity

Performing regularly different forms of physical activity rather than just one brings many benefits to overall health (Mäkelä et al. 2017). In the Team Pentathlon, the learning notion of diversity was incorporated through the rules by asking each team to collectively try to achieve a minimum PH value in all five PA types, based upon the most frequent physical activities practiced by students (aquatics; team sports; cyclic [aerobic] activities; physical conditioning activities; individual or dual sports (Gagnon et al. 2021)). As is the case for younger people, research showed that multiplying types of activities incorporated to lifestyle, thus not only specific to seasonal conditions, provides overload stimulations for the heart, muscles, proprioceptive system and balance, or flexibility and agility, helps adults to continue improving their health, and counteracts the stagnation or capping effect that we find when somebody practices only one PA at the same intensity (Bompa 1999). For example, doing five hours of activity per week using three different types of PA (e. g., cardiovascular, muscular and aquatics) would be considered better for overall health than the same volume of activity performed with only one type of activity. Thus, the authors submit that activities such as active transportation, gardening or physical work should be included in any PAP assessment for adults, provided they are performed at a satisfactory level of intensity.

### Computing the Physical Activity Practice Index

A simple calculation formula for determining a weekly PAP index might have been as follows:  $(F \times D)/60 \times c$ , where **F** represents the number of PA sessions per week, **D** represents the duration of each PA session in minutes, and **c** represents the correction factor for the activity concerned. However, individuals' lifestyle will not always be so systematic as to allow the use of such a straightforward formula. The very fact that the duration of PA sessions may well vary from day to day, or even from one session to another within a single day, makes it impossible to compute adequately a weekly PAP-CH volume through the use of  $F \times D$ . Also, the selection of various types of activity precludes the use of a unique correction coefficient. Whenever an individual wishes to monitor his/her PAP level, the suggested procedure is then to record, for each PA session, the type and category of activity performed and its duration in minutes, considering any change of activity as the start of a new PA session. Keeping a log of all distinct sessions performed throughout the week will then make it possible for the person to compute a partial PAP index for each of the four intensity levels as follows: (total duration [min] over all PA session concerned  $\times$  correction factor)/60, yielding a result in term of PAP-CHs (see bottom of each level column in Table 2).

**Table 2.** Summary Log and Computation of the PAP Index\* (PAP-CHs): An Example

Type of Activity and Duration (D, min) for Each Intensity-Level and Correction Factor					
Category Day	Level 1(0.25) Type/Duration	Level 2 (0.50) Type/Duration	Level 3 (0.75) Type/Duration	Level 4 (1.0) Type/Duration	Total
Day 1: December 7 <sup>th</sup> Su <del>M</del> T W Th F S <sup>1</sup>	Walking/35		Calisthenics/20	Running/45	
Day 2: December 8 <sup>th</sup> Su M <del>T</del> W Th F S	Walking/35				
Day 3: December 9 <sup>th</sup> Su M T <del>W</del> Th F S	Walking/37			Running/62	
Day 4: December 10 <sup>th</sup> Su M T W <del>Th</del> F S	Walking (am)/20 Walking (pm)/20				
Day 5: December 11 <sup>th</sup> Su M T W Th <del>F</del> S	Walking/40		Calisthenics/20	Running/35	
Day 6: December 12 <sup>th</sup> Su M T W Th F <del>S</del>					
Day 7: December 13 <sup>th</sup> <del>Su</del> M T W Th F S	Alpine skiing/240				
Total (min)	427		40	142	609
Total (C-min)	107		30	142	279
Total CHs	1.78		0,5	2.37	*4.65

<sup>1</sup>In left column, put a mark on or circle appropriate weekday as a reference.

Summing up the four partial PAP indices (see bottom row of Table 2) will provide the person with the appropriate week PAP index (total number of PAP-CHs). The computation formula for the PAP index may thus be expressed as follows:

$$\text{PAP index (PAP-CHs)} = \sum_{L1}^{L4} \left[ \sum_{S1}^{Sx} (\text{duration of } S \text{ min.}) \times c / 60 \right]$$

where S: any activity session.

S1: activity session #1 of the week for a particular level.

Sx: last activity session of the week for that particular level.

c: correction factor for the intensity level concerned.

L1: intensity level 1 (c = 0.25).

L4: intensity level 4 (c = 1.00).

Reflecting on the data used to compute the index, the person can then appreciate the extent to which principles of frequency, duration and diversity were applied. Table 2 illustrates an example of a person who recorded the PAP-related data during one week in order to compute his/her PAP index. There is no doubt it would be relatively easy to develop an application to compute electronically one's PAP index. However, the log illustrated in Table 2 provides much information for individuals to reflect on their PAP profile instead of having a global and less discriminate feedback. For instance, with regard to Table 2 results, readers will note that the person's jogging activity, performed on three occasions, accounts for 23% of the weekly PA volume but for 51% of the total PAP-CHs cumulated. Diversity is illustrated by the use of four different activities at three different levels of intensity.

### Regulation of Physical Literacy Levels

"Know thyself" said Socrates. With regard to one's PL awareness and PAP regulation, this advice seems appropriate, particularly when adults are concerned. Stories of individuals who pay a fee for registering into a 2 or 3-month fitness program and give up after a few weeks, ending up losing their money, are not rare. Perhaps because of a lack of knowledge, PL awareness and reflection on their PA habits, many people enter a fitness program, or some other PA program, on a whim and end up giving up.

Earlier, while discussing the computation of the PAP index, the authors identified several characteristics of one's PA practice such as frequency, duration, intensity, type of activity. Related constructs also identified were volume and diversity. All of these features may be subjected to regulation. First, from a quantitative point of view, we will consider that PA volume and PA intensity are central elements in the computation of the index. These are therefore potential elements to be considered when performing what we might call *quantitative PAP regulation*. Obviously, frequency and duration have a direct impact on PA volume,

but they may also be reflected on from a qualitative point of view in the sense that an individual may, for a same raw PA volume result, choose several frequency/duration combinations based on particular agenda preferences or constraints. We have also mentioned that beyond the simple amount of physiological stress or energy expenditure related to one's PAP, diversity ought to be considered, thus adding a qualitative element to PAP regulation.

Discussing the regulation of tactical learning in team sports, Godbout and Gréhaigne (2020) reviewed and differentiated the processes of self-regulation, teacher-centered co-regulation, student/peer-centered co-regulation, shared regulation, and socially shared regulation. Such constructs do apply to PL development or maintenance as well. Also, analogically to the case of team sports, one may consider that planning PAP projects on a long-term (season) and/or short term (days/weeks) basis necessitates strategic and tactical choices, based on various constraints that impose on active people, considering that permanent constraints such as handicaps or physical impairments can no longer be a factor in varying strategic choices, nor tactical ones.

### *How Much Physical Activity Is Enough?*

Whatever may be the PAP level of an individual, any PA is better than none. However, given the perspective of this article, what is at stake is the impact of regular physical activity on his/her physical fitness, health, and well-being status. Thus, it is from the start admitted that, as mentioned earlier, activities associated with too low-energy expenditure are not to be considered for the computation of the PAP index. That being said, there remains the matter of PA dosage, that is the PA volume performed within a given reference period of time, considering the intensity level of the performance. According to the U.S. Department of Health and Human Services (2018), adults should do at least 2.5 to 5.0 hours a week of moderate-intensity, or 1.25 to 2.50 hours a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week. Referring to the PAP index discussed in this article, the "1.25 to 2.50 hours of vigorous-intensity aerobic physical activity" target would correspond to 1.25 to 2.50 PAP-CHs, not counting the time devoted to other types of activity. In relation with the principle of diversity alluded to earlier, the U.S. Department of Health and Human Services (2018, p. 8) recommended that "adults should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits".

### *Physical Literacy Awareness*

Along one individual's PL journey, all types of regulation mentioned above may be put to use. On the long run, the goal for an adult is a functional PL awareness and PL self-regulation; that person will have become "self-directing and self-actualizing" (Klesius 1971, p. 47). Whereas metacognitive awareness

makes one understand the way(s) he/she tends to operate in a learning environment, PL awareness makes someone take notice of the rapport one has with physical activity, its meaning, its importance for the sake of pleasure and/or health benefits, its frequency, its intensity, its duration, its total volume, its diversity, in a word its profile.

Discussing the four target areas for assessing PL, Robinson and Randall (2017) illustrated four PL elements to be considered: (a) physical competence; (b) knowledge and understanding; (c) motivation and confidence; and (d) lifetime engagement. PL regulation implies awareness of each of these elements:

- Awareness of one's physical competence means that the individual is conscious of the spectrum of physical activities he/she can perform efficiently and safely.
- Awareness of one's knowledge and understanding means that the individual knows to what extent he/she understands the principles of regular PA regarding the FITT formula, the acute and chronic effects of exercise, etc.
- Awareness of one's motivation means that the individual understands the reasons for his/her engagement into PA and the factors that influence positively or negatively such an engagement.
- Awareness of one's PA engagement (or PAP) means that the individual is conscious of the level of his/her regular engagement into PA.

Physical competence, knowledge and motivation all contribute to a life engagement in regular PA, the core of PL. As mentioned earlier, this article is primarily devoted to PAP awareness and regulation, although a few remarks are hereafter presented with respect to the matter of motivation.

#### *Regular Physical Activity Practice and Motivation*

Why would one want to regulate his/her PAP level once schooling is over or if there is no grade attached? One's regular PAP at a health level often rests on motivation, one of the PL elements alluded to earlier. Citing a recent publication from *Participation Action*, Robinson and Randall (2017, p. 44) quoted "Motivation is described in the consensus statement as 'enthusiasm for, enjoyment of, and self-assurance in adopting physical activity as an integral part of life'". With all due respect to authors concerned, considering what has been written on the subject of motivation with regard to PAP, this vision of motivation is far too restricted. Intrinsic and extrinsic motivation are well recognized constructs in the literature (Ryan and Deci 2020). It is not in the scope of this article to develop on the subject of PAP motivation. However, it seems appropriate to draw readers' attention on a few motivation-related factors.

"Technically intrinsic motivation pertains to activities done 'for their own sake,' or for their inherent interest and enjoyment... [such activities] are not dependent on external incentives or pressure, but rather provide their own satisfactions and joys" (Ryan and Deci 2020, p. 3). Leisure physical activities

likely meet closely that operational definition of intrinsic motivation. A particular factor of intrinsic motivation, surprisingly often overlooked, is the endorphin factor. It is a well-known fact that when performed at a significant intensity level, physical activity of the endurance type (like jogging, cycling, or cross-country skiing for instance) might bring about a bodily production of endorphin, a substance conducive to pleasure and well-being. The effect of that physical-effort induced hormone may not be noticeable at first but, as regular PAP sets in, the performer starts feeling an addiction effect, a potent intrinsic-motivation element. Regularly active individuals, when deprived of PA, display signs of withdrawal as a way of expressing their need for further PA.

For its part, extrinsic motivation relates to a heterogeneous category of PA behaviors done for reasons other than their inherent satisfaction. This, however, does not necessarily mean that individuals espouse such behaviors forcibly. If one excludes situations in which one exercises under the pressure of external rewards, punishments, compliance or reactance, Ryan and Deci (2017) have identified three levels of internalized extrinsic motivation: introjection (e.g., approval from self and others); identification (e.g., conscious valuing of activity); integration (e.g., congruence, that is making one's own whatever motive induces one individual to exercise). Whatever the reason(s) for which one individual becomes or keeps physically active, reflection on one's PA practice should take into account an awareness of such motives in view of an authentic regulation (meaning making choices for the good reasons). For instance, extrinsic motivation, with regard to PAP, may rest on (a) family/peer/social environment pressure, (b) knowledge about beneficial effects of regular PAP, (c) health or fitness maintenance, (d) health rehabilitation, (e) physical appearance, (d) seduction, etc.

Discussing the debate-of-ideas as a particular strategy for regulating tactical learning in team sports, Godbout and Gréhaigne (2020) have drawn readers' attention on the possible impact of learners' field-dependence (FD) or field-independence (FI) level as to what extent they may be influenced by their physical and social environment. Reviewing the literature on field dependency/independency theory, Liu and Chepyator-Thomson (2009, p. 126) wrote:

FD individuals have a tendency to rely on, and are influenced by, external referents (environments, authorities, and significant others), and function less autonomously in decision-making and behaviors. In contrast, FI individuals tend to rely on internal referents (self) as the primary source for, and are more autonomous in, decision-making and behaviors, have a more articulated body concept, and are more sensitive to body information.

These characteristics are basically similar to those expressed by Angeli and Valanides (2012), Holmes et al. (2013), Woodbridge (1995), and Woodbridge and Haimés-Bartolf (2006). Although it is not the purpose of this article to discuss the possible relationship between individuals' FD/FI level and their PAP motivation, it seems reasonable to hypothesize that, referring to Ryan and Deci's (2020) taxonomy of motivation briefly described earlier, FD older students' and adults' motivation will tend to be "externally" or "somewhat externally" regulated. For its part, FI older students' and adults' motivation will tend to be "somewhat-

internally” or internally regulated. In other words, likely FI individuals will tend to manage their PAP on their own while likely FD individuals will tend to rely on others to maintain a regular PAP. Particulars of both categories may of course vary due to a series of other factors. Coming back to the “awareness of PAP motivation” as operationally defined earlier, the point for an older student or an adult (whatever his/her age) is to reflect on his/her PAP level and PA profile, and identify which domestic, financial, environmental and social conditions tend to induce him/her into a higher level of PAP. Should individuals be able to answer such question(s), then they can proceed to plan realistic specific PA projects and their PAP in general.

### *Physical Activity Practice Awareness and Regulation Scenarios*

One may wonder what the point behind the notion of a PA project is. The very notion of “project” is closely linked to that of regulation. Left to haphazard, one’s PAP will likely wither, on and off, without taking root. Strategy wise, making choices for the planning of a several-week PA project (one-semester or one-season long for instance) implies bearing in mind several elements that do not necessarily pertain to the same domain. Above all, decisions will take into account economic constraints. With regard to outdoor activities, environment constraints or opportunities will play an important role in selecting preferred activities; so will seasonal constraints. Time and fitness constraints, with respect to the FITT formula components, will also help specify the particular profile of the PA project: such types of exercises, so many times a week, for such a duration, at such intensity.

With regard to PAP regulation, the obvious goal is to have the new adult take charge of the planning and enacting of a regular practice of physical activity, with or without the participation to fitness programs offered in the community. Autonomy and self-reliance as to one’s PAP do not come overnight as does the legal age of majority. Awareness of one’s level of PL and its regulation need to be nurtured before the end of the schooling period as part of the PE curriculum (see Whitehead (2013b), Table 1, on page 54). PL awareness means, among other elements mentioned earlier, being conscious of one’s PAP level, a state of mind that does not come offhand. Perkins’ (1992) level categories for metacognitive awareness could be useful for operationalizing four degrees of PL awareness: tacit, aware, strategic, and reflective. Tacit physical literates are individuals who may exercise without really thinking about it, matter-of-factly. Aware physical literates are conscious of the fact they perform physical activities for one reason or another. Strategic physical literates organize their PAP, taking into account the time at their disposal, their preferences in term of activities, the cost, etc., and making decisions accordingly. Finally, reflective physical literates, beyond being strategic about their PAP, also reflect on their PA profile and regulate their PA planning/project.

Throughout the PL journey, other regulation scenarios, in addition to PL self-regulation, may be envisioned. Co-regulation will occur when two individuals are involved in the regulation process. Teacher/expert-centered co-regulation may involve a teacher with a particular student under the form of feedbacks and/or

particular instructions for following activity sessions, or involve an expert (fitness consultant, fitness leader, private dance teacher, etc.) with an adult who has elected to register in some fitness or dance class, for instance. Student/peer-centered co-regulation may involve student dyads checking on one another, conducting simultaneously their particular PE-related PL project; they may then discuss their respective FITT formula, exercise together, etc., the point being that there is no more-competent/less-competent rapport among them. They co-regulate their respective PAP on equal terms. The same kind of connection may be seen between adults (friends, spouses, family members). Finally, socially shared PAP regulation will occur when groups of individuals (students or adults) accept or choose to exercise as a group, monitor their PAP profile and make decisions as to a common PAP project for coming days or weeks. Although each member of the group self-regulates in order to participate fully, he/she is committed to apply the common PAP project. PE classes, civil sport leagues, fitness groups, dance companies, etc., may be involved in this type of regulation.

With regards to the practice of team sports, Gréhaigne and Godbout (1995, p. 491) have distinguished the notions of strategy and tactics: "... *strategy* refers to these elements discussed in advance in order for the team to organize itself. *Tactics* are a punctual adaptation to new configurations of play and to the circulation of the ball; they are therefore an adaptation to opposition". A few years later, they added a few clarifications (Gréhaigne et al. 1999, p. 168): "There is a fundamental difference between strategy and tactics as far as their relationship with time is concerned. Strategy is associated with more elaborate cognitive processes as the decisions made are based on reflection without time constraints. Tactics operate under strong time constraints". Analogically, one may consider that for an individual, planning or adjusting his/her PA project over days, weeks and months bears a resemblance with planning and enacting a strategic match plan. In terms of long-term PA profiling, PAP remains a relatively linear experience in the sense that individuals may very well make strategic PA plans for a whole season, or even a whole year given appropriate seasonal conditions or continuous indoor access. On a short-term basis, one's PA schedule may prove to be more nonlinear, based on varying weather conditions, injuries, sickness episodes, work-based travels, family chores, etc. Such nonlinear conditions call for tactical choices, the individual adjusting temporarily his/her PA profile or daily schedule, keeping in mind the targeted PAP index. One may hypothesize that FI individuals will likely adjust more easily to such constraints.

As described earlier, PL awareness involves being conscious not only of one's PA engagement level but also of one's physical competence, knowledge and understanding, and motivation. The more physically literate is an individual, the easier it becomes to strategically plan alternative PAP scenarios and to adjust to unexpected constraints. PA tactical adjustments, fueled by intrinsic or internalized extrinsic motivation, may call for considering physical and or social environment-related opportunities, selecting other physical activities, while maintaining a volume of activity that meets one's pre-established FITT formula. The more physically competent, knowledgeable and motivated the individual, the easier it gets to adjust to constraints.



*Tailored Physical-Activity-Practice Monitoring for More Engaged Physical Literates*

The PAP index computed on the basis of the procedure described earlier in this article is intended for individuals who wish to benefit from a general indicator of their level and quality of PA engagement. It is likely that as individuals exercise regularly (particularly younger adults), their work capacity will increase so that an activity classified as vigorous at first may become moderate for them after a while. Some individuals may wish to plan their PA project on the basis of a more precise criterion in term of cardio-respiratory intensity, not being satisfied with the general and average classification presented in this article. In such cases, intensity may be determined in terms of percentage of estimated maximal heart rate or, even better, percentage of heart rate reserve. It is not the purpose of this article to describe at length the relationship between maximum working capacity, activity-related energy expenditure and heart rate associated with percentages of  $VO_2$  max. Simple procedures for computing either a given percentage of estimated maximal heart rate or a given percentage of heart rate reserve may be found in textbooks (e.g., Corbin et al. 2018) or on the web (e.g., Corbin et al. 2014), as well as recommended percentage values for moderate, vigorous or very vigorous levels of activity. Concerning activities more oriented toward muscular fitness, they may choose to exercise based on percentages of maximum strength and, for instance, on a Likert scale appreciation for other types of activities. Tidén et al. (2021) have used a “getting sweaty and out of breath” criterion as an appreciation of PA intensity that would, in our mind, put an activity at level 3 or 4 (Table 2).

In recent years, technological advances related to smart mobile devices have made it possible to inform adult participants about their PAP level (Dunn et al. 2018). Whether on smartwatches or cell phones, these applications can calculate movements (GPS, accelerometer or pedometer), provide daily reminders of the level of practice and warn the participant when the PAP level is lower than usual. Some of these devices can even simultaneously take heart rate or even blood pressure during exercise and store those data for future use. Systematic reviews showed that the effectiveness of these apps to stimulate PA is for a short period of time (Pradal-Cano et al. 2020, Romeo et al. 2019). Unfortunately, these devices have certain limitations and cannot, for example, calculate all forms of PA, such as those that do not require displacement (muscular activities for example). As these technologies are getting more accessible to the general public and are effortless in terms of entering daily results, they become interesting options for someone who wants to regulate his/her PA practice.

**Limitations**

The procedure presented in this article is not intended to accurately measure individuals' level of PA practice. It should be looked at as simple monitoring instrument that individuals can use to understand the main principles of a healthy

PAP, to regulate their PA practice and develop their physical literacy. Several elements related to a healthy PAP, such as relaxation activities for example, have not been included into the procedure but should be considered by each individual according to his/her personal management of daily activities. Other limitations may also affect the PAP for certain individuals such as for example the geographical location, the weather or poor health conditions. The development of PL needs therefore to take into consideration all of these factors; older students and adults must be able to interpret what seems to be the optimal conditions so that the PAP is beneficial for their health.

## Conclusion

The PAP index described in this article is not intended to provide an exact measure of one's volume of physical activity per se. Also, as mentioned before, this PAP monitoring procedure does not concern only adults. Unless individuals have experienced opportunities to develop PL awareness and construct regulation mechanisms under the facilitating guidance of a mentor, they stand little chance, on the long run, to become autonomous in that matter, hence the critical importance of being exposed to self-reflection on their PAP by the end their schooling life. The purpose of the PAP index is to help an individual monitor his/her PAP over time while taking simultaneously into account its intensity and volume whatever the selected activity(ies). Although not directly used in the computation of the index, frequency and duration specific to each PA session, as well as the diversity of activities performed, may be reflected on as they are recorded. These various characteristics contribute to make that procedure a novel one. Willingness to monitor one's PAP implies at least a minimal level of PL awareness. Besides reflecting on their PA-related knowledge and PA competency and capacities, individuals ought to understand their reasons for engaging into the regular practice of physical activity. Based on their answers to such questions, they can then engage into regulation scenarios with the help of monitoring instruments such as the one discussed in this article.

## References

- Acree LS, Longfors J, Fjeldstad AS, Schank B, Nicke KJ, Montgomer PS, et al. (2006) Physical activity is related to quality of life in older adults. *Health and Quality Life Outcomes* 4(1): 37.
- Ainsworth BE, Haskell WL, Herman SD, Meckes N, Basset Jr DR, Tudor-Locke C, et al. (2011) *The Compendium of physical activities tracking guide*. Arizona: Healthy Lifestyles Research Center, College of Nursing & Health Innovation, Arizona State University.
- Angeli C, Valanides N (2012) How do field-dependent and field-independent learners interact with a computer modeling tool to solve a problem? Implications for the design of joint cognitive systems. In *ICICTE 2012 Proceedings, edited by International Conference on Information Communication Technologies in Education*, 95–104.

- Barisic A, Leatherdale ST, Kreiger N (2011) Importance of frequency, intensity, time and type (FITT) in physical activity assessment for epidemiological research. *Canadian Journal of Public Health* 102(4): 174–175.
- Barnett LM, Mazzoli E, Hawkins M, Lander N, Lubans DR, Caldwell S, et al. (2020) Development of a self-report scale to assess children's perceived physical literacy. *Physical Education and Sport Pedagogy* (Advance Online Publication).
- Biddle SJH, Gorely T, Pearson N, Bull FC (2011) An assessment of self-reported physical activity instruments in young people for population surveillance: project ALPHA. *International Journal of Behavioral Nutrition and Physical Activity* 8(1): 1–9.
- Bompa TO (1999) *Periodization: theory and methodology of training*. 4<sup>th</sup> Edition. Champaign, IL: Human Kinetics.
- Bouchard C, Landry F, Brunelle J, Godbout P (1974) *La Condition Physique et le Bien-être* (Physical fitness and well-being). Quebec City, Canada: Éditions du Pélican.
- Bouchard C, Tremblay A, Leblanc C, Lortie G, Savard R, Thériault G (1983) A method to assess energy expenditure in children and adults. *American Journal of Clinical Nutrition* 37(3): 461–467.
- Brenner JS, the Council on Sports Medicine and Fitness (2007) Overuse injuries, overtraining, and burnout in child and adolescent athletes. *Pediatrics* 119(6): 1242–1245.
- Cairney JH, Clark J, James ME, Mitchell D, Dudley DA, Kriellaars D (2018) The preschool physical literacy assessment tool: testing a new physical literacy tool for the early years. *Frontiers in Pediatrics* 6(Jun): 138.
- Corbin CB, Le Masurier GC, McConnel KE (2014) *Fitness for life*. 6<sup>th</sup> Edition. Champaign, IL: Human Kinetics.
- Corbin CB, Welk G, Corbin W, Welk K (2018) *Concepts of fitness and wellness: a comprehensive lifestyle approach*. 12<sup>th</sup> Edition. New York (NY): McGraw-Hill Education.
- Daley AJ, Duda JL (2006) Self-determination, stage of readiness to change for exercise, and frequency of physical activity in young people. *European Journal of Sport Science* 6(4): 231–243.
- Delisle T, Werch CE, Wong AH, Bian H, Weiler R (2010) Relationship between frequency and intensity of physical activity and health behaviors of adolescents. *Journal of School Health* 80(3): 134–140.
- Dunn EE, Gainforth HL, Robertson-Wilson JE (2018) Behavior change techniques in mobile applications for sedentary behavior. *Digital Health* 4(Jul): 1–8.
- Gagnon J, Nadeau L, Martel D, Normandin J-M, Michaud V (2021) *Le Pentathlon en équipe* (Team pentathlon). Quebec City, Canada: Department of Physical Education, Laval University.
- Girard S, Lemoyne J, Blais D, St-Amand J (2021) An analysis of mechanisms underlying social goals in physical education: A comparison between ordinary and special classes. *Physical Education and Sport Pedagogy*. (Advance Online Publication).
- Godbout P, Gréhaigne J-F (2020) Regulation of tactical learning in team sports – The case of the tactical-decision learning model. *Physical Education and Sport Pedagogy*. (Advance Online Publication).
- Gréhaigne J-F, Godbout P (1995) Tactical knowledge in team sports from a constructivist and cognitivist perspective. *Quest* 47(4): 490–505.
- Gréhaigne J-F, Godbout P, Bouthier D (1999) The foundations of tactics and strategy in team sports. *Journal of Teaching in Physical Education* 18(2): 159–174.
- Hickerson BD (2011) Measuring physical activity in youth settings: considerations for instrument selection. *Journal of Youth Development – Bridging Research and Practice* 6(4): 1–10.

- Hills AP, Mokhtar N, Byrne NM (2014) Assessment of physical activity and energy expenditure: an overview of objective measures. *Frontiers in Nutrition* 1(5): 1–16.
- Holmes RM, Liden S, Shin L (2013) Children's thinking styles, play, and academic performance. *American Journal of Play* 5(2): 219–238.
- Klesius SE (1971) Physical Education in the seventies: where do you stand? *Journal of Health, Physical Education, Recreation* 42(2): 46–49.
- Liu W, Chepyator-Thomson JR (2009) Field dependence–independence and physical activity engagement among middle school students. *Physical Education and Sport Pedagogy* 14(2): 125–136.
- Longmuir PE, Gunnell KE, Barnes JD, Belanger K, Leduc G, Woodruff SJ, et al. (2018) Canadian assessment of physical literacy second edition: a streamlined assessment of the capacity for physical activity among children 8 to 12 years of age. *BMC Public Health* 18(Suppl. 2): 1047.
- Lustyk KB, Windam L, Paschane AE, Olson KC (2004) Physical activity and quality of life: Assessing the influence of activity frequency, intensity, volume, and motives. *Behavioral Medicine* 30(3): 124–131.
- Mäkelä S, Aaltone S, Korhonen T, Rose RJ, Kaprio J (2017) Diversity of leisure-time sport activities in adolescence as a predictor of leisure-time physical activity in adulthood. *Scandinavian Journal of Medicine & Science in Sports* 27(12): 1902–1912.
- Martel D, Gagnon J, Nadeau L, Michaud V, Godbout P (2011) Team pentathlon – Promoting physical activity among older children and adolescents. *Revue phénEPS/ PHENex Journal* 3(2): 1–20.
- McLain JJ, Tudor-Locke C (2009) Objective monitoring of physical activity in children: Considerations for instrument selection. *Journal of Science and Medicine in Sport* 12(5): 526–533.
- Musich S, Wang SS, Hawkins K, Greame C (2017) The frequency and health benefits of physical activity for older adults. *Population Health Management* 20(3): 199–207.
- Payne S, Townsend N, Foster C (2013) The physical activity profile of active children in England. *International Journal of Behavioral Nutrition and Physical Activity* 10(Dec): 136.
- Perkins D (1992) *Smart schools: better thinking and learning for every child*. New York (NY): Free Press.
- Pradal-Cano L, Lozano-Ruiz G, Pereyra-Rodriguez JJ, Saigi-Rubio F, Bach-Faig A, Esquiú L, et al. (2020) Using mobile applications to increase physical activity: a systematic review. *International Journal of Environmental Research and Public Health* 17(21): 8238.
- Robinson DB, Randall L (2017) Marking physical literacy or missing the mark on physical literacy? A conceptual critique of Canada's physical literacy assessment instruments. *Measurement in Physical Education and Exercise Science* 21(1): 40–55.
- Rodgers WM, Sullivan MJL (2001) Task, coping, and scheduling self-efficacy in relation to frequency of physical activity. *Journal of Applied Social Psychology* 31(4): 741–753.
- Romeo A, Edney S, Plotnikoff R, Curtis R, Ryan J, Sanders I, et al. (2019) Can smartphone apps increase physical activity? Systematic review and meta-analysis. *Journal of Medical Internet Research* 21(3): e12053.
- Ryan RM, Deci EL (2017) *Self-determination theory: basic psychological needs in motivation, development, and wellness*. New York (NY): Guilford Publishing.
- Ryan RM, Deci EL (2020) Intrinsic and extrinsic motivation from a self-determination theory perspective: definitions, theory, practices, and future directions. *Contemporary Educational Psychology* 61(Apr): 101860.

- Sallis JF, Saelens BE (2000) Assessment of physical activity by self-report: status, limitations, and future directions. *Research Quarterly for Exercise and Sport* 71(Suppl. 2): 1–14.
- Sylvia LG, Bernstein EE, Hubbard JL, Keating L, Anderson EJ (2014) A practical guide to measuring physical activity. *Journal of the Academy of Nutrition and Dietetics* 14(2): 199–208.
- Tidén A, Brun Sundblad G, Lundvall S (2021) Assessed movement competence through the lens of Bourdieu – A longitudinal study of a developed taste for sport, PE and physical activity. *Physical Education and Sport Pedagogy*. (Advance Online Publication).
- U.S. Department of Health and Human Services (2018) *Physical activity guidelines for Americans*. 2<sup>nd</sup> Edition. Washington (DC): U.S. Department of Health and Human Services.
- Westerterp KR (2009) Assessment of physical activity: a critical appraisal. *European Journal of Applied Physiology* 105(6): 823–828.
- Whitehead M (1993) Physical literacy. In *IAPESWG Congres*. Melbourne, Australia.
- Whitehead M (2001) The concept of physical literacy. *European Journal of Physical Education* 6(2): 127–138.
- Whitehead M (2013a) Definition of Physical Literacy and clarification of related issues. *Journal of Sport Science and Physical Education* 65: 29–34.
- Whitehead M (2013b) Stages in physical literacy journey. *Journal of Sport Science and Physical Education* 65: 52–56.
- Whitehead M (2013c) What is the education in physical education? In S Capel, M Whitehead (eds.), *Debates in Physical Education*, 22–36. New York (NY): Routledge.
- Woodbridge B (1995) Increasing the effectiveness of university/college instruction: integrating the results of learning style research into course design and delivery. In RR Sims, SJ Sims (eds.), *The Importance of Learning Styles: Understanding the Implications for Learning, Course Design, and Education*, 49–67. Westport (CN): Greenwood Press.
- Woodbridge B, Haines-Bartlof M (2006) The field dependence/field independence learning styles: implications for adult student diversity, outcomes assessment and accountability. In RR Sims, SJ Sims (eds.), *Learning Styles and Learning: A Key to Meeting the Accountability Demands in Education*, 237–257. Hauppauge (NY): Nova Science Publishers.
- Zhu Z, Feng T, Huang Y, Liu X, Lei H, Li G, et al. (2019) Excessive physical activity duration may be a risk factor for hypertension in young and middle-aged populations. *Medicine* 98(18): e15378.



## The New Agenda 2020+5 and the Future Challenges for the Olympic Movement

By Mario Nicolliello\*

*In March 2021, the Session of the International Olympic Committee (IOC) has approved a new strategic roadmap, Olympic Agenda 2020+5, consisting of 15 recommendations. The title, Olympic Agenda 2020+5, has been chosen to reflect the fact that this new roadmap is the successor to Olympic Agenda 2020 and will guide the work of the IOC until 2025. Olympic Agenda 2020+5 builds on the results of Olympic Agenda 2020, which, in the six years since it was adopted in December 2014, has had a profound impact. It has strengthened the IOC by introducing changes intended to make the Olympic Games fit for the future, safeguard the Olympic values, and strengthen the role of sports in society. The 15 recommendations that make up Olympic Agenda 2020+5 are based on key trends concerning areas where sport and the values of Olympism can play a role in turning challenges into opportunities. The recommendations call upon the IOC to: strengthen the uniqueness and the universality of the Olympic Games; foster sustainable Olympic Games; reinforce athletes' rights and responsibilities; continue to attract the best athletes; further strengthen safe sports and the protection of clean athletes; enhance and promote the Road to the Olympic Games; coordinate the harmonisation of the sports calendar; grow digital engagement with people; encourage the development of virtual sports and further engage with video gaming communities; strengthen the role of sport as an important enabler for the UN Sustainable Development Goals; strengthen the support to refugees and populations affected by displacement; reach out beyond the Olympic community; continue to lead by example in corporate citizenship; strengthen the Olympic Movement through good governance; innovate revenue generation models. The paper aims at analysing how principles contained in the Agenda 2020+5 can redesign a more inclusive model of the Olympic Games, with respect to all the stakeholders.*

**Keywords:** Agenda 2020+5, Olympic movement, IOC; Olympic Games

### Introduction

Thomas Bach would have liked to be re-elected in Athens, and the next day to go to the Sanctuary of Olympia, where everything began 776 years before the birth of Christ. However, COVID-19 got in the way, so his plans were impacted. The second term of Thomas Bach as President of the International Olympic Committee was therefore officially born online, with the voting carried out from home by members of the Olympic family and the 67-year-old German

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president who welcomed the result in the Lausanne headquarters, in a dark suit, white shirt and red tie.

Eight years ago, when he took over from Jacques Rogge in the Hilton hotel in Buenos Aires, Thomas Bach was already dreaming of a new four-year mandate to bring his years of reign up to twelve. Two weeks after his election during his first public outing as president, he was in Olympia on the occasion of the lighting of the flame in Sochi. With typical Teutonic air, he told the reporters, “We are waiting for the reforms needed to modernize the Games.” No sooner said than done. Just 15 months later, inside the Fairmont in Monte Carlo, Bach launched the 2020 Olympic Agenda—his indelible mark in the history of the Olympic family—the first phase of the reform program, the one linked to the inaugural mandate. Like all far-sighted executives, the number of the IOC also kept the trump card, to bring it down at the beginning of the second term. Therefore, in March 2021 the virtual session released the 2020 + 5 Olympic Agenda, the roadmap for the next four years.

The 2020 + 5 Agenda is based on the results of the previous 2020 Agenda and consists of 15 recommendations. However, before turning our gaze to the future, it is necessary to focus on the present, because the Tokyo 2021 Olympic Games will not only be the only ones to take place in an odd year, but also the first without a foreign audience in the stands.

The COVID-19 pandemic is undoubtedly the most brutal of the challenges that Thomas Bach had to face as president of the Olympic family. In the face of it, the issue of Russian doping, the absence of candidates for the Games, the protests of the athletes during the competitions all seem insignificant. Yet, on closer inspection, Bach has been able to look beyond the conjuncture in every area, designing a path of structural change. In Russia he stated, “pay the nation, not the clean athlete.” In the host cities he extracted the double assignment Paris 2024-Los Angeles 2028 from the hat, and with the Milan-Cortina 2026 combination he enlarged the geography of the Olympic venues.

Starting with the revolutionary assignment of the Games, they will no longer be decided solely by the hands of the Session, but rather will be decided at the table by a Commission that will make the choice after a long dialogue with potential candidates. There will be no more winners and losers, but only cities chosen after a common improvement path of the initial project. To promote sustainable Olympic Games, it will be necessary to limit carbon dioxide emissions, while strengthening the quality of the competitions. It will be necessary to attract the best athletes by harmonizing international calendars (so as not to oversee other events at the same time as the Games), to protect clean sportsmen by severely punishing those who break the rules, protect athletes who are refugees, displaced and involved in war conflicts. On the road to increasing digital involvement, virtual sports and video game communities will also have citizenship rights. Finally, to increase revenue, it will be necessary to go beyond generalist TVs and take advantage of new technologies to expand the audience. The reconfirmed president summed up this up by stating, “When we adopted the 2020 Agenda in 2014, we did so under the motto, still valid today, *change or you will be changed*. The world around us has continued to evolve. However, difficult the circumstances may appear at the moment, if we draw the right conclusions, we can turn them into opportunities.”



His namesake, Johan Sebastian, played the organ and composed indelible works. He, Thomas from Würzburg, used to stick with foil as a young man, and today builds bridges to ferry Olympism into in the post-coronavirus world.

While introducing the debates during the Virtual IOC Session in March 2021, Thomas Bach explained: “The coronavirus crisis has changed our world in fundamental ways. The world will never again be like it was before. Even once we have finally overcome the health crisis, we will face the far-reaching social, financial, economic and political consequences.” He continued: “As leaders of the Olympic Movement, we must prepare ourselves for this new world. In order to shape our future, we need a vision of how this new world will look like.” According to the IOC (2021), the 15 recommendations that make up Olympic Agenda 2020+5 have been developed through an inclusive and collaborative process. They are based on key trends that have been identified through robust research, as likely to be decisive in the post-coronavirus world. There are also areas where sport and the values of Olympism can play a key role in turning challenges into opportunities. Following the IOC discussion, the five trends that have been identified are: solidarity; digitalisation; sustainability; credibility; and economic and financial resilience.

Concluding his introduction during the Virtual Session, President Bach commented: “Olympic Agenda 2020+5 as our vision for the future of the Olympic Movement addresses these overarching trends. The aim is to build even more solidarity, to harness the positive potential of digitalisation, to be the impactful enabler to achieve the UN Sustainable Development Goals, to strengthen the credibility of the constituents of the Olympic Movement, and to join forces with other values- or purpose-driven organisations.”

He thanked everyone who had participated, saying: “The 15 recommendations have been developed in a collaborative initiative, involving all stakeholders of the Olympic Movement, but especially with input and feedback from all the IOC Members, in particular through work and contribution in the different IOC Commissions. Olympic Agenda 2020+5 has been developed by all of us and therefore belongs to the entire Olympic Movement.”

This paper aims to analyse the recommendations contained in the 2020+5 Olympic Agenda and how these indications could redesign a more inclusive model of the Olympic Games with respect to all the stakeholders.

After this introduction, the paper continues with the methodology part, then in the conceptual framework, the Olympic Agenda 2020 will be matched with the previous literature and with the analysis of the stakeholders of the Olympic Games. The results contain the analysis of Olympic Agenda 2020+5, while the discussion is the section containing the original contribution, obtained by putting together the Agenda 2020, the Agenda 2020+5 and the stakeholders of the games. Finally, the conclusion summaries the results and indicates the future developments.

## Methodology

The objective of the work is to carry out a qualitative analysis to bring together the theory of stakeholders with the 2020+5 Olympic Agenda. In particular, in the first part of the work, the Olympic Agenda 2020 and the stakeholders of the Olympic Games will be identified. Subsequently, the elements of the 2020+5 Olympic Agenda will be presented as results of this analysis. Finally, the two areas will be put together and it will be outlined how it was possible to define a new business model that is more inclusive of the Olympic Games, starting from the 2020+5 Olympic Agenda and considering the individual stakeholders.

Regarding the collection of data, the basis was the website of the International Olympic Committee ([www.olympic.org](http://www.olympic.org)), on which the documents related to the progress of the implementation of the 2020+5 Olympic Agenda were collected.

In particular, the main document was the one released in April 2021 on the occasion of the IOC Session.

## Conceptual Background

### *Olympic Agenda 2020*

Olympic Agenda 2020 is the strategic roadmap for the future of the Olympic Movement. The 40 recommendations are like pieces of a jigsaw puzzle that, when you put together, form a picture that shows the IOC safeguarding the uniqueness of the Olympic Games and strengthening sport in society.

Some of the key areas addressed by Olympic Agenda 2020 are (IOC 2014):

- Changes to the candidature procedure, with a new philosophy to invite potential candidate cities to present a project that fits their sporting, economic, social and environmental long-term planning needs.
- Reducing costs for bidding, by decreasing the number of presentations that are allowed and providing a significant financial contribution from the IOC.
- Moving from a sport-based to an event-based programme.
- Strengthen the 6<sup>th</sup> Fundamental Principle of Olympism by including non-discrimination of sexual orientation in the Olympic Charter.
- Launch of an Olympic Channel to provide a platform for sports and athletes beyond the Olympic Games period, 365 days a year.
- Adapting and further strengthening the principles of good governance and ethics to changing demands.
- Athletes remain at the centre of all 40 of the proposals, with the protection of the clean athletes being at the heart of the IOC's philosophy.

This Olympic Agenda 2020 was unanimously agreed upon at the 127<sup>th</sup> IOC Session in Monaco on the 8<sup>th</sup> and 9<sup>th</sup> of December 2014. The reforms follow a year of discussion and consultation with all stakeholders of the Olympic Movement, as well as external experts and the public. More than 40,000 submissions were

received from the public during the process, generating some 1,200 ideas. Fourteen working groups synthesised the discussions and debates throughout the whole Olympic Movement and wider society before the recommendations were finalised by the Executive Board ahead of the 127<sup>th</sup> session.

Olympic Agenda 2020 is a set of 40 detailed recommendations whose overarching goal was to safeguard the Olympic values and strengthen the role of sport in society. Identified and collated through a collaborative and consultative process involving Olympic Movement stakeholders and outside experts, they were driven by a recognition that the world was evolving rapidly and that the Olympic Movement had the opportunity to be an agent of change. The motto underpinning the process from identification to adoption to implementation was, “change or be change”—a philosophy that remains as compelling today as it was six years ago (IOC 2015).

Built on the three pillars of credibility, sustainability and youth, the 40 separate yet interrelated recommendations can be likened to a jigsaw puzzle. When all 40 pieces are put together, a picture emerges in which progress in ensuring the success of the Olympic Games, strengthening the role of sport in society, and greater connection with young people and those outside the Olympic Movement becomes apparent. This picture, the outcome of six years of commitment and engagement by all stakeholders, has developed gradually, with the full impacts emerging only now.

“Olympic Agenda 2020 has changed the Olympic Games, the IOC and the Olympic Movement. Having achieved 85 percent of the recommendations is a great example of what we can accomplish when we work together. But it is our conviction that the success of today only gives us the opportunity to drive the change for tomorrow,” IOC President Thomas Bach said in December 2020, during the Olympic Forum. He continued: “Carrying forth the unity which Olympic Agenda 2020 created within the Olympic Movement and building on its success, we can contribute to shaping the post-coronavirus world. From this position of strength and stability, we have every reason to be confident about our future, as we continue to pursue our mission to make the world a better place through sport” (IOC 2020).

### *Literature Review*

The theme of the 2020 Olympic Agenda has been at the center of several analyses conducted by the authors in the past.

In particular, MacAloon (2016) examines the current Olympic bidding crisis and evaluates the accompanying Agenda 2020 reform process at the International Olympic Committee. The organization’s decline in public opinion, particularly in Europe, is associated with its recent failure to consistently and convincingly represent the Olympic Movement (as opposed to the Olympic Sport Industry). Using IOC relations with international human rights organizations as a template, real progress in the course of the Agenda 2020 process was achieved, but then suspended or reversed by the selection of Beijing as host of the 2022 Winter Olympic Games.

Schnitzer and Haizinger (2019) reveal that the 2026 Winter Olympic Games (WOG) hosts plan to reduce the budgets for the organization and the infrastructure costs in the host regions. As a consequence, the number and nature of the sites and venues as well as the distances between them will increase. This means that the future Olympic Heritage (OH) may lay less in iconic buildings, but rather will focus on the attempt to fulfil the city's long-term strategies.

Thorpe and Wheaton (2019) examine the power and politics involved in the process of including three new action sports—surfing, skateboarding and sport climbing—into the Tokyo 2020 Olympic Games. Drawing upon interviews with 20 key individuals involved in the process (e.g., action sport IF Presidents and staff; presidents of action sport national federations; industry members; athletes), and formal and informal communications with IOC staff, they reveal the complex power relationships between the IOC and international action sport governing bodies, and within the International Federations of surfing, skateboarding and sport climbing. Furthermore, they contextualize the inclusion of these new action sports into the Tokyo 2020 programme within Agenda 2020 and significant IOC policy reform. Bringing together a critical sociological engagement of the Olympic Games with a typology of international organizational change, they consider whether Agenda 2020 is a policy signaling deep organizational learning and significant cultural change, or rather a superficial attempt at performing the changes necessary to maintain their dominance in the global sports economy. Despite promises and proclamations of organizational change, they conclude that the inclusion of action sports into the Tokyo 2020 Games is a salient example of the complex operations of hegemony in the highly competitive sports market, with the power of the IOC adapting and enrolling unlikely others into its operations.

According to Mataruna Dos Santos et al. (2019), the Olympic Games is passing through a new phase on the planet. The sport has reformed around the world especially in the Arabic-speaking Gulf countries. The local culture, religion and natural environment are the driving forces that are shaping the behavior of the society. Nowadays, the consumption and sharing of sports information is through the medium of the latest technology, like the tools of social media. The youth belonging to the Gulf Cooperation Council (GCC) countries use sports as a medium to communicate via social media. Their analysis used the situational analysis to describe the challenges of six communication channels for promoting the International Olympic Committee (IOC) Agenda 2020 for the GCC countries based on the SWOT, PESTLE and CATWOE methodologies. The results showed that the geographical area has huge potential to promote high performance and values of sport for future generations of athletes using the Youth Olympic Games as a seasonal door. However, an improvement from the perspective of consumer behavior is necessary to generate youth engagement through National Olympic Committees (NOCs) during Summer and Winter Olympic Games, with a heavy focus on the challenges for the new generation through social media. The recommendation points were that bilingual youth athletes (speaking Arabic and English) should be the new voice of the Olympic Movement in the GCC countries.

Compared to previous works, this paper intends to investigate how the Olympic Agenda 2020+5 can contribute to designing more inclusive Olympic Games, considering the needs of individual stakeholders.

### *The Stakeholders of the Olympic Games*

The Olympic Games are configured as a mix of products and services that must be well-coordinated to achieve the set objectives. To ensure an effective combination of these tangible and intangible factors, the contribution of multiple operators, both public and private, is almost always necessary, so as to constitute a project network, given the temporally limited nature of the event, which must be well-selected and organized. It follows the importance of a careful identification of the necessary contributions and, therefore, of the design of the network as well as a subsequent ability to coordinate, formally and informally, the team that has been formed.

The task that should concern the event manager is precisely that of ensuring that the event system is able to interact in a functional way with the elements of the external environment, while ensuring the pursuit of those purposes and objectives deemed to be priority, and guaranteeing finally, a respect for the social climate and the community in which the event is organized and inserted.

Today the Olympic Games must be considered as an economic and social system, in which a multiplicity of players take part, and one in which an equally large number of interlocutors are interested. It is on this principle that the stakeholder theory is based, according to which the social dimension of the company or organizing body joins the more properly entrepreneurial one, and consequently it is appropriate that the effects of the event guarantee a fair balance between the objectives. This is strictly economic, and includes the other repercussions including those of a social nature.

By accepting this vision of the event as a social system with multiple purposes, it follows a series of indications that are connected to each other: in addition to the traditional bearers of capital shares, there may be other categories (the stakeholders) that can also affect the management of the event favoring the creation of positive or negative situations to the activity of the event itself. Stakeholders are interested not only in economic results, but also in the social value that the organization or the events it organizes are able to generate.

The stakeholders of an event are those groups or people who can influence or be influenced by the existence of an event (Freeman and Reed 1983, Clarkson 1995). In particular, the primary stakeholders are those individuals or groups without whose support the event would cease to exist, while the secondary ones are those actors which, although not directly involved in the event, can seriously influence or even prevent the success of the event (Freeman 1984 and 1994).

Taking the view of who has to organize the Olympic Games, the primary stakeholders are:

- Athletes: people who have an active role in the event, producing the most important part of the Games from the sport side. They participate in the Games with the aim of winning medals and prizes.
- Organizing Committee: They create the Games, setting up the conditions for athletes to compete. The organizers bear the expenses and collect the revenues from local sponsors and spectators.
- International Olympic Committee (IOC): is the body that supervises the Games, choosing the host city and managing TV rights and global sponsorships.
- National Olympic Committees: These are the national bodies that guarantee the participation of athletes in the Games, supporting travel and preparation expenses.
- International Sports Federations: They are the bodies that manage the sports included in the Olympic program. Thanks to the revenues obtained from the IOC they manage to survive.
- Employees: the human resources who are involved in various capacities in the entire event management process, from the realization of the idea to the operational development of the event. Generally, their activity is remunerated.
- Volunteers: they do not receive any monetary compensation, but they can equally play an important role in the process of carrying out the event;
- Sponsor: organizations which collaborate in various capacities in the organization of the event, providing material, intangible and economic resources for carrying out the event itself;
- Suppliers: they provide resources of a different nature in return for a payment;
- Media: they have the potential to promote the knowledge and image of the Games towards the general public.

The secondary stakeholders include:

- Spectators: they sometimes play an active role becoming protagonists through their participation in the event. They buy tickets, contributing to the turnover of the event, and add a touch of color that increases the media value of the Games.
- Local institutions: they may affect the performance of the event by defining the policies and procedures to be respected.
- Host community: it is included among the stakeholders as a result of the fact that generally the events are held in a limited geographical area where citizens and businesses live and work.
- Economic and productive system of the host territory: it includes all those companies that offer various types of services to participants and visitors, also in terms of marketing and sponsorship.

## Results

### *The Olympic Agenda 2020+5*

In March 2021, the Session of the International Olympic Committee (IOC) has approved a new strategic roadmap, Olympic Agenda 2020+5, consisting of 15 recommendations, that are based on key trends concerning areas where sport and the values of Olympism can play a role in turning challenges into opportunities. In this paper we analyze the 15 recommendations, highlighting what the objectives of each recommendation are and what the IOC should do to achieve them. The recommendations are analyzed one by one below (IOC 2021).

#### 1. Strengthen the Uniqueness and the Universality of the Olympic Games

This principle concerns the preservation and promotion of the universality of the Olympic Games. For example, to preserve the principle of universality through guaranteed continental representation within the Olympic qualification systems; to continue to strengthen the Olympic scholarships for athletes' programme, in particular for those National Olympic Committees (NOCs) in the greatest need; to identify innovations in sport to reflect, as appropriate, in the programme and delivery of the Olympic Games; to consider the addition of physical virtual sports in the Olympic Programme in cooperation with the respective International Federations (IFs).

Secondly, the aim is to make the Olympic Games experience more inclusive by engaging with the largest possible audience. For example, to study the possibility to take some sports events or some parts of the ceremonies out of the stadiums and bringing them to urban and popular settings, or to develop 'phygital' experiences with both physical and digital components, such as for example an online platform during the Olympic Games for fans and stakeholders (e.g., chat with athletes, behind the scenes tour).

Thirdly, the idea is to collaborate with key players in the worlds of sport, entertainment, music and art to enhance all components of the Olympic Games experience (e.g., live sites, open warm-up, virtual sport), and to broadcast the Olympic Games using innovation and athlete-centric storytelling to highlight the relevance of the Olympic values.

#### 2. Foster Sustainable Olympic Games

This principle pursues to achieve climate-positive Olympic Games at the latest by 2030, and to support Organising Committees of the Olympic Games (OCOGs) and their partners in developing and monitoring oversight of Olympic Games supply chains and construction workers' rights as part of their human rights approach.

The aim is to ensure that key legacies are achieved before the Olympic Games. The legacy plans a governance structure and long-term funding which are in place early in the lifecycle and encourage IFs and National Federations (NFs) to use facilities of Olympic Hosts.

The key point is to optimize the delivery of the Olympic Games in partnership with Olympic Movement constituents. To this end, the milestone could be refined allocation of responsibilities between stakeholders (e.g., OCOGs, IFs, NOCs, The Olympic Partners [TOPs], Rights-Holding Broadcasters [RHBs], International Paralympic Committee [IPC], IOC), and to identify cost saving opportunities that evolve the event-based programme with a key focus on simplifying the venue master plan and reducing cost and complexity in each sport. By providing right-size service levels and avoiding any over-scoping through efficient data capture and sharing programmes, working with stakeholders to streamline numbers of on-site participants, and actively promote opportunities to perform Olympic Games-related tasks remotely the Olympic Games will be able to operate more optimally.

### 3. Reinforce Athletes' Rights and Responsibilities

This principle aims to increase employment opportunities for Olympians and elite athletes within the IOC, to encourage all stakeholders to provide transparency on their support to athletes, to promote and support athletes' rights across the Olympic Movement, to develop guidelines and best practices to support the delivery of the Athletes' Rights and Responsibilities Declaration for athletes and stakeholders, to increase the recognition of Olympians and of the Olympians community (e.g., to develop assets that Olympians can use to promote their status as Olympians, to empower Olympians in acquiring knowledge and developing skills in digital media through Olympic Games-time and online workshops).

### 4. Continue to Attract Best Athletes

This principle widens the scope of engagement with best athletes. Therefore, the purposes concern: to engage with best athletes, in collaboration with IFs, professional leagues, NOCs and player representatives, in order to ensure the motivation of current and emerging generations of best athletes to compete at the Olympic Games; to engage with IFs, NOCs, professional leagues and other sports event organizers; to celebrate the athletes being part of the global Olympians community including through promotion on Olympic broadcasts and digital platforms.

### 5. Further Strengthen Safe Sport and the Protection of Clean Athletes

This principle aims to expand current efforts to protect clean athletes. In the Antidoping field, there is a need to continue to support World Anti-Doping Agency (WADA) and International Testing Agency (ITA) development and implementation of anti-doping programmes, including professional leagues and college sport.

Concerning the prevention of competition manipulation, it becomes necessary to increase awareness and education on integrity, ethical principles and prevention of manipulation of competitions for athletes, their entourage and all officials, including judges and referees, and to encourage IFs to assess and enhance their refereeing and judging systems.



#### 6. Enhance and Promote the Road to the Olympic Games

This principle aims to elevate the profile of thousands of qualifying events by authorizing the use of Olympic branding (e.g., OCOG marks) in a flexible manner and to support the tens of thousands of athletes to narrate their participation in the qualifying events and digitally promote their journey to the Olympic Games. In order to do so, there is a need to amplify engagement with all other stakeholders (e.g., event organizers, local authorities, participating NOCs) involved in the qualification process by offering them opportunities to communicate on this Olympic journey.

#### 7. Coordinate the Harmonization of the Sports Calendar

This principle aims to address the number, frequency and scope of multi-sport events to fit with the post-COVID-19 world. To this end, from one side it seems indispensable to coordinate the harmonization of multi-sports event planning across the Olympic Movement to ensure sustainability for all stakeholders; from the other side, it is necessary to ensure that athletes' voice and perspective are part of the decision-making process linked to the planning of sports calendars.

#### 8. Grow Digital Engagement with People

This principle aims to use Olympic digital and social media channels to deliver engagement opportunities during and between the Olympic Games. In order to do so, it needs to: build a single, people-centric, digital platform, Olympics.com (e.g., merging the websites and apps of Olympic Games into the single Olympic platform; building a dedicated digital presence, ioc.org, for the IOC as an institution featuring its work and programmes to deliver on its mission); deliver digital content and communications to people for the benefit of the IOC, IFs, NOCs, athletes and OCOGs based on data insights; and use Olympic Channel Services as a hub for content, technology, digital product and data analysis activities in support of the IOC Digital Strategy and the entire Olympic Movement.

#### 9. Encourage the Development of Virtual Sports and Further Engage with Video Gaming Communities

This principle aims to leverage the growing popularity of virtual sport to promote the Olympic Movement, Olympic values, sports participation and grow direct relations with the youth. To this end, it is essential to: strengthen the roles and responsibilities of IFs in establishing virtual and simulated forms of sports as a discipline within their regulations and strategies; to launch unique Olympic products and experiences through virtual and simulated forms of sports, in support of the IOC's digital engagement strategy; consider the addition of physical and virtual sports in the Olympic Programme in cooperation with the respective IFs; and make available Olympic athlete-related online programmes and digital tools to the competitive video gaming community to support their physical and mental well-being.

### 10. Strengthen the Role of Sport as an Important Enabler for the UN Sustainable Development Goals

This principle aims to build on the existing relationship with UN agencies to influence global social policy change and resource allocation. In order to do so there is a need: to strengthen the cooperation with UN agencies (e.g., WHO, UNESCO, UNHCR, UN Women) to provide opportunities for people who do not usually have access to sport in low and middle-income countries; to create partnerships with Development Banks or other development organizations to increase investment in sport infrastructure and scale the impact of sport for sustainable development; to enable NOCs to promote the Olympic Values at a national level by enhancing Olympic Solidarity's programmes around social development; to enhance cooperation with the IPC on social development programmes.

### 11. Strengthen the Support to Refugees and Populations Affected by Displacement

This principle aims to raise awareness of the global refugee crisis and increase access to sport for people affected by displacement. In next years, IOC will support the Olympic Refuge Foundation to ensure one million forcibly displaced young people have access to safe sport by 2024. At the same time, it would be necessary to provide ongoing support to refugee athletes of all abilities through Olympic Solidarity scholarships and to facilitate refugee athlete participation and access to international- and national-level competitions. The final aim is to measure the impact of the Sport Coalition for Refugees that pledged to improve access for refugees to facilities, sport activity and participation in sporting events and competition

### 12. Reach out beyond the Olympic Community

In order to reach out beyond the Olympic community, IOC needs to engage and interact with diverse social groups focusing on different demographics, geographies and interests (e.g., cultural communities, scientific communities, value-based communities). Then, IOC should reach out to new communities, leveraging strategic and commercial partnerships, fostering dialogue through culture and education, leveraging programmes that reach beyond the Olympic community (e.g., visual, performing, literary artists, architects, designers, educators).

### 13. Continue to Lead by Example in Corporate Citizenship

The aims of IOC regarding this principle are: to be a leader in sustainability; to inspire and assist the Olympic Movement in developing sustainable sports worldwide; to foster gender equality and inclusion; to strengthen the human rights approach.

Regarding sustainability, IOC have to reduce CO2 emissions in line with the Paris Agreement by 30% by 2024 and become a "climate positive" organisation through the creation of the "Olympic Forest" and other mitigation measures; to develop a comprehensive education programme across all levels of responsibility,

and to increase staff competency in implementing the Sustainability Strategy within their areas of responsibility.

Concerning the inspiration, IOC needs to support IFs and NOCs in their transition towards carbon neutrality through the Sport for Climate Action Framework and other means to assist the IFs and NOCs in developing their own sustainability strategies including sourcing and resource management, and to facilitate best practice sharing in sustainable innovation in sport infrastructure.

Regarding inclusion, the IOC should become an example by continuing to increase gender balance at IOC Governance level and adopting a Diversity and Inclusion action plan for its administration. Finally, concerning human rights, IOC could amend the Olympic Charter and the “Basic Universal Principles of Good Governance” of the Olympic and Sports Movement to better articulate human rights responsibilities.

#### 14. Strengthen the Olympic Movement through Good Governance

The route in front of the IOC about this principle is full of new challenges. In particular, IOC should update the “Basic Universal Principles of Good Governance” to the latest standards, to foster the compliance of all the Olympic and recognize IFs, NOCs, IOC-Recognized Organizations with the “Basic Universal Principles of Good Governance,” to initiate the self-assessment of the Recognized Federations and Organizations concerning compliance with the “Basic Universal Principles of Good Governance,” to strengthen the involvement of Olympic Movement stakeholders in the International Partnership Against Corruption in Sport (IPACS) to increase the effectiveness of anti-corruption measures.

#### 15. Innovate Revenue Generation Models

The last principle regards the economics of Olympic Games. The aim of IOC is to innovate revenue generation models to ensure long-term viability of the Olympic Movement. In order to do so, it needs to consider alternative transmission methods, such as free digital, to complement traditional free-to-air television; to ensure official Olympic broadcasters, sponsors and other commercial partners and programmes support and benefit from the IOC Digital Strategy, to evolve and enhance the TOP Sponsorship Programme, to create a centralized Olympic hospitality programme for the benefit of all Olympic stakeholders and finally to diversify Olympic revenue sources (such as global e-commerce, commercialization of social media and Olympic-related gaming).

### **Discussion**

The recommendations contained in the 15 points of the 2020 + 5 Olympic Agenda can be declined, considering first of all their time horizon and the link with stakeholders (Table 1). In regards to the time horizon, the recommendations are divided into short-term (within the year, therefore within 2022) or medium-term (within 4 years, therefore within 2025). The stakeholders, on the other hand, are divided into primary and secondary, referring to the classification proposed in the Conceptual Background.

In Table 2, the relationship is between the type of stakeholders and the type of rule. In particular, the 15 recommendations are divided between those that have an impact on the sports field and those that instead impact on the economic and social aspects.

The first table shows how two-thirds of the recommendations (10 out of 15) have an impact on the medium-term. In fact, only principles 4 to 8 are short-term. Of these, the first three have to do with primary stakeholders, and the last two with secondary stakeholders. In regards to the ten medium-term points, five refer to primary stakeholders and five to secondary stakeholders.

**Table 1.** *The Relationships between Stakeholders and Time Horizon*

<b>Stakeholders</b>	<b>Principles</b>	
Primary	4,5,8	1,2,3,9,11
Secondary	6,7	10,12,13,14,15
<b>Time Horizon</b>	Short	Medium

Source: Author's elaboration.

**Table 2.** *The Relationships between Stakeholders and Type of Rules*

<b>Stakeholders</b>	<b>Principles</b>	
Primary	2,8	1,3,4,5,9,11
Secondary	6,12,13,14,15	7,10
<b>Type of rules</b>	Social Economics	Sport

Source: Author's elaboration.

As it is demonstrated, the Table 2 clearly shows a split: the majority of the recommendations concerning the economic aspects impact on the secondary stakeholders, those of the majority concerning the sports aspects impact on the primary stakeholders.

The analysis therefore shows that the 2020 + 5 Olympic Agenda includes all the stakeholders of the Olympic movement, and not just the athletes and organizers. The fact that seven recommendations refer to spectators, local institutions, the reference community of the organizing city and the more general production system of the territory, means that the IOC has understood how the only way to guarantee the survival of the Games is to extend the spectrum and to broaden the audience of stakeholders is considered as much as possible.

At the same time, the new rules are not limited to the Games that will come, therefore the summer ones in Tokyo 2021 and the winter ones in Beijing 2022, go to the next editions; those that will give a new connotation to the idea of the Olympic Games—in Paris 2024 in fact, gender equality between men and women in competition will be achieved, with Milan-Cortina 2026 the polycentric organization of the Games will be inaugurated, with more cities involved.

In all of this, the sporting dimension must also be accompanied by the social and economic ones. In fact, the Olympic Games do not only have a sporting relevance, but go further, acquiring a social function and necessarily having to be played in conditions of balance between costs and revenues.

It is therefore not surprising that in the 2020+ 5 Agenda recommendations that go beyond sporting dynamics are in greater proportions than what had happened with the previous Agenda 2020.

Obviously when discussing this document, we cannot ignore the fact that it follows the 2020 Agenda and must therefore start from the previous results, which is good to summarize.

There were 40 recommendations contained in the Olympic Agenda 2020, developed to safeguard Olympic values and strengthen sport in society. “Change or be changed,” was in fact the motto of the process, a fascinating philosophy still today as it was in 2014. Built on three pillars, namely credibility, sustainability and youth, the document is like a mosaic: only when all the pieces will be attacked, the final picture will emerge. Meanwhile, according to what was relaunched by IOC in March 2021, 85% of the recommendations have been reached and the Agenda has brought about changes and progress in the Olympic movement, laying solid foundations for the future.

Starting with the process of assigning the Games, made to be more cooperative and targeted, the reduction of the average budget for nominations for the winter edition of 2026 came to 5 million dollars, compared to 35 million for 2022. The use of flexible infrastructures has been encouraged, with savings of 5 billion dollars for Tokyo alone. In Paris, 95% of the offices will be existing or temporary, and in Los Angeles 2028 no new permanent structures are planned.

The biggest reform is the Olympic program. In Paris, gender equality will be achieved for the first time, while before the Agenda, women were 44% of the competitors. The number of mixed events –where men and women compete together– moved from 8 in 2012, to 18 in Tokyo, up to 22 in Paris. In addition, the additional sports proposed by the IOC and the organizers made the review urban, youthful and feminine. In addition, the Youth Olympic Games have been an innovation laboratory to test new formats, and in 2026 they will be staged in Dakar, the scene of the first Olympic competition in Africa.

The second area of innovation involved athletes. More than 100,000 have signed up for Athlete365, a branch that offers training programs in six languages, while 5,500 have benefited from support in the areas of dual careers and professional transition, so as to have a guaranteed job after retiring from competition.

To ensure a clean sport, the IOC now spends 260 million dollars during the Olympics to fight doping, while as a consequence of the 2020 Agenda, 60 million has been invested in the protection of athletes, creating the International Testing Agency (ITA), encouraging education against rigged competitions and promoting new scientific approaches to anti-doping.

The third area was solidarity. After the 2020 Agenda, the budget allocated to support athletes and national Olympic committees has increased from 311 to 590 million dollars. In recent months alone, during the Coronavirus, the IOC has provided aid of up to 150 million dollars, supporting 1,600 athletes with scholarships, allowing them to continue preparations for the Games postponed to 2021. In addition, the Olympic team of refugees, with projects in Rwanda, Mexico, Turkey, the Democratic Republic of Congo, Kenya, Jordan, Uganda and

Colombia, so much so that today 200,000 displaced young people have access to safe sports.

In terms of sustainability, the goal is ambitious: to have zero-impact on carbon dioxide emissions by the Games in 2030. On gender equality, on the other hand, today female membership of the IOC is 37.5%, compared to 21% at the beginning of the 2020 Agenda; women represent 47% of the members of the commissions, compared to 20% in 2014. The IOC has invited all countries to include at least one woman and one man in their teams at the Tokyo Games, giving the opportunity for both a female and a male to carry the flag together during the opening; it will be up to the individual nations to seize, or not, the opportunity.

This reform process has strengthened the confidence of sponsors and business partners, with a positive impact on economic results. The IOC can thus distribute 90% of its income to support athletes. “Today’s success will allow us to lead change for tomorrow,” said the number one of the Olympic movement, Thomas Bach, adding: “Thanks to the unity that the 2020 Agenda has created in our environment we can shape the post-Coronavirus, making the world a better place through sport.”

Putting together the interests of individual stakeholders, with the points of the 2020 Olympic Agenda, and those of the 2020 + 5 Olympic Agenda, it is therefore possible to outline the evolutionary scenario of the new Olympic Games model (Table 3).

**Table 3.** *The Relationships between Stakeholders and Olympic Agendas*

Stakeholders	Stakes	After Olympic Agenda 2020	After Olympic Agenda 2020+5
Athletes	winning medals	They are the core of the Games, gender equality, battle against doping, refugees	new rights and responsibilities, protection of clean athletes, development of virtual sports
IOC	managing TV rights and global sponsorships	Reinforced Games Image, savings in costs, major role in the society	New relationships with athletes, partners and organizers
Organising Committee	bearing the expenses and collecting revenues	More flexibility in the management of the Venues	new legacy plans
International Sport Federations	obtaining money from IOC	Protection of clean athletes, good governance, increase solidarity	harmonization of the sports calendar, new road to Olympic Games
National Olympic Committees	supporting preparation of athletes	Assistance in the phase of preparation, good governance, increase solidarity	attracting best athletes
Sponsors	increasing their image	New agreements with new long deadlines, trust creates stability	new top partnership programs

Suppliers	Obtaining revenues providing resources	Sustainability, reduced carbon footprint	Strengthen the role as an enabler for the UN Sustainable Development Goals
Broadcasters	widespreading the Games around the world	Launch of Olympic Channel	Innovate revenue generation model
Other Media	promoting the knowledge of the Games	New contents, New presence in the Social Media	New engagement with athletes
Workforce	creating the event	New more massive and inclusive involvement	Good governance
Volunteers	creating the event	New more massive and inclusive involvement	Good governance
Spectators	playing an active role during competitions	New ways to attend to the events	digital engagement
Organizers of next Olympic Games	learning from the past to improve the future	Shortened the time of their commitment and savings in costs	new legacy plans

Source: Author's elaboration.

These will be the Games of the future, which we will have to get used to, since the “Paris 2024” edition, the first of the new, more inclusive and open Olympiad model.

## Conclusion

Paris is worth a mass, that of gender equality between men and women in the Olympic field. In 2024, in the shadow of the Eiffel Tower, the five-circle athletes will be equally divided between males and females: 5250 in blue, as many in pink. It is suggestive that this happens precisely in the French capital, already the scene in 1900 of the first appearance, albeit as a demonstration, of women in the Olympic context, and in 1922 of the inaugural edition of the provocative women's Olympic Games. The finish line was in the air, but to be reached it took a last mile driven at the spur of the IOC, which heavily worked on the new Games program. There are those who have gained and those who have lost within the individual national federations, but the moral winner of the reform is precisely the IOC, which in one fell swoop has put men and women on the same level (in Tokyo instead the boys will be the 51.2%, women 48.8%), increasing mixed events (from 18 to 22), reaching gender parity in 28 out of 32 sports (in gymnastics and swimming, thanks to rhythmic and synchronized in women, football and wrestling, thanks to the greater number of teams and the Greco-Roman, men), but reducing both the total number of athletes (from 11,092 to 10,500) and the events that will award medals (from 339 to 329).

The four sports admitted as add-ons following the organizers' proposal are rejoicing: break dance (at the absolute debut at the Games), surfing (which will be held in Tahiti, in the Pacific Ocean), skateboarding and climbing. The last three will already be present in Tokyo next year as well, along with karate and baseball/

softball, which will leave the company after 2021 (both have proven unpopular in France).

Within the classic sports, those that saw their proposals for change approved were canoeing, sailing and shooting. The sport of paddling will introduce extreme slalom competitions, where you compete against the opponent and not against the clock, at the expense of two flat water speed tests. In sailing, on stage in Marseille, the revolution is total. The traditional classes will remain three (the two Lasers and the 470 mixed with a man and a woman), while the acrobatic classes will be six; the two Windfoils, instead of Windsurfing, with the boards that, instead of gliding, will fly over the water, the Nacra Foil, the two 49ers and the Kiteboarding, that is the board with the kite with a man and a woman who will compete in the relay. The question mark remains about a new mixed event; it should be an offshore test that could represent the first step towards ocean sailing at the Games. Finally, in volley shooting, the mixed test will no longer be in the pit, but in skeet.

All other proposals were rejected, as they did not respect the three constraints placed by the IOC on the Federations: any insertions should not have involved the construction of new facilities, an increase in the number of athletes and an increase in the number of medals. Thus, gymnastics had to give up parkour, handball to the beach version, rowing to coastal competitions, and athletics to cross-country running, while swimming had previously withdrawn the proposal for dives from great heights and 50 meters breaststroke, backstroke and butterfly. The Queen of Olympic sports holds 48 events, but greets the men's 50km walk, replaced by a new mixed heel and toe competition. Worse has gone to boxing and weightlifting. On the square, a female category will replace a male one, while the weights will discount the problems that have emerged in terms of doping and governance with the cancellation of four categories and the reduction of athletes from 196 to 120.

So far the news from Lausanne, and even in the Ville Lumiere, there is something brewing in the pot. In fact, a revolution in the geography of five-circle places is to be announced. To keep costs down, four facilities (the rugby stadium, the volleyball hall, the St. Denis swimming pool and the Zenith for weight lifting) will not be built, so there will be a reshuffling of the disciplines in the remaining poles. The Bercy building will therefore host artistic gymnastics in the first week and basketball in the second, the rhythmic will emigrate to Porte de la Chapelle, swimming will end up in Defense, handball even in Lille. Greater dispersion, but lower costs. It is the wallet that dictates the choices.

In summary, it is possible to note how the 2020 Agenda has made possible a greater involvement of individual stakeholders around the Olympic Games. Individual actors are now more included in the idea of Games, which has become over time more open to the attention of individual subjects.

This paper focused on the continuation of the 2020 Agenda, i.e., the 2020 + 5 Olympic Agenda, the recommendations of which were approved in March 2021.

Compared to the previous literature, the paper did not intend to present a concrete case of application, but simply an investigation of the principles in order to better outline the new model of the Olympic Games that we will have to face in the coming years.



The current limitation of the paper is that the analysis was based only on documents produced by the IOC. At the same time, the future development can be to extend the analysis by also involving the documents produced by the other stakeholders of the Games, such as the International Federations, the Organizing Committees and the National Olympic Committees.

## References

- Clarkson MBE (1995) A stakeholder framework for analysing and evaluating corporate social performance. *Academy of Management Review* 20(1): 92–117.
- Freeman RE (1984) *Strategic management: a stakeholder approach*. Boston: Pitman.
- Freeman RE (1994) The politics of stakeholder theory: some future directions. *Business Ethics Quarterly* 4(4): 409–421.
- Freeman RE, Reed DL (1983) Stockholders and stakeholders: a new perspective on corporate governance. *California Management Review* 25(3): 88–106.
- International Olympic Committee – IOC (2014) *Olympic Agenda 2020: context and background*. Montecarlo: IOC.
- International Olympic Committee – IOC (2015) *Olympic Agenda 2020: 20+20 recommendations*. Lausanne: IOC.
- International Olympic Committee – IOC (2020) *Olympic Agenda 2020 drives progress and change*. Retrieved from: <https://www.olympic.org/news/olympic-agenda-2020-drives-progress-and-change>. [Accessed 21 December 2021]
- International Olympic Committee – IOC (2021) *IOC executive board proposes Olympic Agenda 2020+5 as the strategic roadmap to 2025*. Retrieved from: <https://www.olympic.org/olympic-agenda-2020-plus-5>. [Accessed 1 April 2021]
- MacAloon JJ (2016) Agenda 2020 and the Olympic movement. *Sport in Society Cultures, Commerce, Media, Politics* 19(6): 767–785.
- Mataruna Dos Santos LJ, Zardini Filho CE, Cazorla A (2019) Youth Olympic Games: using marketing tools to analyse the reality of GCC countries beyond Agenda 2020. *Journal of Human Sport and Exercise* 14(3proc): S391–S411.
- Schnitzer M, Haizinger L (2019) Does the Olympic Agenda 2020 have the power to create a new Olympic heritage? An analysis for the 2026 Winter Olympic Games bid. *Sustainability* 11(2): 442.
- Thorpe H, Wheaton B (2019) The Olympic Games, Agenda 2020 and action sports: the promise, politics and performance of organisational change. *International Journal of Sport Policy and Politics* 11(3): 465–483.



## Identifying the Role of Digital Technologies in Sport Spectators Customer Experiences through Qualitative Approach

By Ekaterina Glebova\* and Michel Desbordes<sup>‡</sup>

*The massive uptake of digital technologies has changed the way how fans and the sports service field communicate and interact. In the current paper, we would like to emphasize the role of technology holistically in sport spectators customer experiences (SSCX) as a "game-changer" marketing in sports and the digitalization of SSCX. In this paper, we aim to explore and qualitatively describe by interviewees verbatim how new technologies impact SSCX. It draws on the literature review, combined with the primary data collected on unstructured interviews with international sport management and technology experts (N=10). It brings sports marketing insights followed by examples from industry professionals. Iterative analysis of data combined with literature review let us achieve to outline the crucial points and trends of technological transformations in sports spectacle. We offer an updated perspective on the SSCX through the prism of the impact of digital technologies and reshaping sports consumption culture. To this end, we develop a conceptual model that captures the nature of modern SSCX influenced by digital technologies.*

**Keywords:** technological transformation, sports spectacle, customer experience, co-creation, connectivity

### Introduction

Sports Spectators Customer Experiences (SSCX) are changing because of the rapid uptake of digital technologies. This study aims to explore, explain and visualize the impact of new rapidly diffused digital technologies on SSCX, focusing on smartphones, mobile applications (apps), immersive technologies, connected objects by the Internet of Things (IoT), and big data. Thus, we intend to offer an updated perspective on the SSCX through the prism of the effect of digital technologies and reshaping sports consumption culture. To this end, we develop a conceptual model that captures the nature of modern SSCX influenced by digital technologies.

Italian novelist Alessandro Baricco (2020) begins his book "The game" with the indignant question about how it happened that people lost such simple human pleasures as a carefree weekend and a long dinner with friends, and voluntarily plunged into the digital world as if wearing "electronic collars". Where was the first "crack"? At what point was a turning point (and a point of no return as well) in the modern world? Baricco (2020) finds this point, and he believes that it happened in 1978-1979 in bars at the moment when people moved from hand-

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made soccer games to the computer game "Space Invaders" because it was the first blockbuster computer game. And, it seems to be directly related to sports. The person who wanted to play a game stopped playing hand football with a real friend.

"First scene. Table football, pinball machine, video game. Take half an hour and go from one to the other, in that order. You thought you were playing, instead, you crossed the space that separates one civilization, the analogue one, from another, the digital one. You have migrated to a new world: light, fast, immaterial. Second scene. Take the icon that for centuries has embodied the meaning of our civilization: man-sword-horse. Compare it to this: man-keyboard-screen. And you will have before your eyes the mutation taking place. An earthquake that has redesigned the posture of us humans spectacularly. Whatever you think of the Game, it is a useless thought if it does not start from the premise that the Game is our insurance against the nightmare of the twentieth century. His strategy worked, today the conditions for a tragedy like that to repeat itself have been dismantled. We are used to it by now, but it must never be forgotten that there was a time when, for such a result, we would have given anything. Today, if they ask us to leave our email in exchange, we get nervous".

Analyzing this quote, we realize the significant role of sports spectating pastime in the overall human digitalization and transformation, and vice versa, the crucial impact of technologies on sports spectacle culture (Gulhan 2014). Thus, this paper focuses on massively diffused in sports consumption digital technologies: big data, social media, smartphones and other personal screen devices, IoT (internet of things), XR (immersive technologies), and mobile applications (apps), as the "quintessence" of SSCX digitalization (Glebova and Desfontaine 2020).

Despite technological development and sports digitalization trends, research on sports digitalization in the international sports discipline is surprisingly nascent. "The sports environment is complex and needs to be analyzed in a holistic manner" (Ratten 2018). Earlier Glebova and Desfontaine (2020) described the technological and digital transformation of SSCX and proposed in a narrative manner that the employment of new technologies may change SSCX through different dimensions (Lemon and Verhoef 2016).

"The digital transformation is the main point of attention due to its impact on processes, infrastructure and business models. But we don't want people to think that sports are a business, right? It's all about passion. Nowadays, a process in progress is the 'digital revolution', with technology dictating the timing of a new vision in the sports industry that is materializing every single day. Using events, the elimination of distances, constant communication, mobile entertainment, new payment methods and proximity, you can build some of the pillars that drive the sports management to the creation of specific and advanced digital resources, to be integrated with structural ones" (George-Ciprian Enache, personal communication, 21.11.2020).

The present study aims to explore and investigate the effect of digital technologies implementation and employment on spectators customer experiences in sports (SSCX), referring to the customer-centric approach (Glebova and Desfontaine 2020). It delineates the usage of technologies as a multidimensional

construct and proposes that new technologies affect consumer psychology and experience (Lemon and Verhoef 2016, Glebova and Desbordes 2020a). Positive perceptions toward technology use lead to positive behavioural outcomes (Morosan and DeFranco 2016), research has determined cases when the use of technology may increase technology anxiety, in turn leading to customer dissatisfaction (Liu 2012, Lee and Baker 2017). It brings us to ask the question: "How the digital technologies should be employed and used in SSCX effectively and efficiently, to maximize the positive impact on consumer behaviour, experience, and satisfaction?" Accordingly, the findings of this research are interesting for sports management and marketing professionals, scholars and all the stakeholders in the sports industry.

## Literature Review

Over the years scholars described the importance of communicating with a customer (Yu and Trail 2011), including the sports industry (Bee and Khale 2006, Abeza et al. 2013). We have noticed that diffusions of technologies have changed the way how fans and the sports service field communicate and interact (Glebova and Desfontaine 2020). Establishing customers/users profiles (Hautbois et al. 2019, Schut and Glebova 2020), because it allows targeting and personalization providing new marketing opportunities. All Sport Spectators experiences are different because they are affected by various factors through many dimensions (Glebova and Desfontaine 2020, Klaus and Maklan 2012, Steward et al. 2003).

According to Shank (2005), there are three types of sport consumers: spectators, participants and sponsors, subsequently, the sports industry intends to satisfy the needs of. Accordingly, the current study is mainly focusing on spectators. Biscaia et al. (2018) study provides the exploration of an identity as a multidimensional construct, referring to the stakeholder theory, indicating acceptable psychometric properties of the multidimensional construct of fan identity composed of power, urgency, internal legitimacy and external legitimacy, which is influencing intentions to recommend games to others. All these constructs have been extensively impacted by the digitalization of SSCX.

Gentile et al. (2007) suggested that a customer's subjective response is multifaceted, accordingly, can be seen from different perspectives, and nowadays the digital technologies perspective is the most important in delivering CX (Glebova and Desfontaine 2020). Verhoef et al. (2009) noted "total experience" included "search, purchase, consumption, and after-sale phases of the experience". Later, these ideas were continued and developed on the work of Lemon and Verhoef (2016). But Lemke et al. (2011) built a conceptual model of CX based on 3 main constructs: communication, service and usage. Finally, it was concluded that there are many challenges to researching this area and the field of customer experience management is a relative area for future research (Lemon and Verhoef 2016). Furthermore, Lemon and Verhoef have mentioned that CX is a fundamental factor in marketing, accordingly, many empirical findings have suggested a link between CX and business outcomes economic value, loyalty, satisfaction (Morgan

and Rego 2006), profit, purchasing decision. According to Gilmore and Pine (2002), customers' needs go beyond just a quality service, transferring to experience. And, again, digital technologies are the main driver of improving SSCX quality (Glebova and Desfontaine 2020).

Jaakkola et al. (2015, p. 19) see the perspective of "address the dynamics of interaction between customers and communities, new types of service emerging in the "sharing economy" that generate inherently co-created service experiences, and the emotional, cognitive and behavioural aspects of service experience co-creation from the respective viewpoints of customers, service providers, and other actors". Furthermore, Jaakkola et al. (2015) develop the integral conceptualization for "service experience co-creation", identifying the multiple dimensions of this construct: value co-creation, foundational sociality in contemporary markets, methods for measuring and managing experiences.

In the current paper, we would like to emphasize the role of technology in a holistic manner in SSCX as a "game-changer" through the perspective of sports management and digitalization of SSCX, outlining the main trends and defining the areas of impact and, consequently, of change.

## **Methodology**

The synthesis of literature and collected data let us build the theoretical model and provide qualitative insights to describe, explain and visualize modern SSCX and technological transformation. It involves personal communications in form of open-ended unstructured qualitative interviews (N=10) with sports management and technology international experts (Table 1). All participants prefer to display their names, retaining "ownership" over their opinions and maintaining a kind of public link to their professional identity. Every personal communication has been individual in terms of collection tools, structure, questions, contents and time, taking into account the preferences of an interviewee. We actively use verbatim to convey the meaning without distortion and try to reflect the nature of the modern SSCX. It allows delivering the field practitioners' insights accompanied by further interpretations and analysis.

Interviews were unstructured, open-ended, personalized and have been conducted through skype or messenger (call/chat) or face to face, including the option of writing responses. Most cases included questions regarding:

- Digital technologies applied in SSCX, main trends.
- Effect of technologies in SSCX, impact and change of the industry.
- Positive and negative sides of technology influence in SSCX.
- Technology impact through cognitive, emotional, behavioural, sensorial, and social dimensions (Lemon and Verhoef 2016) of SSCX.

**Table 1.** *Personal Communications List (in Alphabetical Order)*

#	Name	Position	Expertise field, focus on	Communication tools
	Barracrough, Stuart	Expert in Business Innovation and stakeholder engagement	Sport technology innovations	In-depth responses by writing
	Book, Robert	PhD. Candidate in Sport Sciences	Fan engagement	Skype interview, followed chat communications
	Brice, Nicholas	Keynote Speaker, Culture Consultant and Theatre Producer/Director	CX	In-depth responses by writing
	Enache, Ciprian	Marketing Director at Digital Economy Development	Sports Digitalisation	In-depth responses by writing
	Iraola, Juan	Chief Innovation Officer at Real Sociedad and Sports Innovation Alliance	Sports innovations and fan experiences	Skype interview
	Jacobs, Stijn	Leading Sports, gaming & esports industry at Okuden	Sports innovations, marketing and fan experiences	Face-to-face open-ended interview
	McCumber, Ryan	Global Sports Innovation & Sports Tech Futurist and Evangelist	Sports innovations, sports ecosystem and fan experiences	Skype interview
	Mukanova, Karina	PhD student, researching co-hosted major sports events	Co-hosting and co-creation	The combination of written and spoken responses, divided into few communications including clarifications
	Niaz, Faran	Founder, CX Future; Customer Experience, Change Management and CX Transformation Expert	CX, Technological transformation	The combination of written and spoken responses, divided into few communications including clarifications
	Saleh, Khaled	CEO at MSA Academy	Sports management and ecosystem technological transformation	Skype interview, followed chat communications

Source: primary data, collected by authors.

The data analysis process is continual and iterative. All interviews are transcribed, read several times to catch main accents, identify and outline the key concepts and, finally, deeply understand experts' speeches. After all, transcripts are attentively reviewed to check the relevance and meaning of these concepts and themes and further synthesized and analyzed towards research results. We use verbatim to transfer the original meaning of collected data to a reader. We believe

the qualitative approach gives us the ability to provide complex textual descriptions of how and why interviewed experts explain the technological transformation of SSCX.

The research results provide benefits for all organizations in the sports industry, sports-related brands, event organizations, researchers and customers as well. It extends the literature review on SSCX and technological impact and compliments with empirical dataset analysis. Sport managers need to know and understand their spectators to better adjust technological implementation. Furthermore, possessing knowledge enables managers to keep a track of various types of technologies they have planned, introduced and implemented, make better decisions in the area of resource allocation and enhance SSCX.

## Results and Discussion

The results section and Discussion section of this paper are combined since in the case of this study, in terms of the presentation, results make little sense without interpretation.

The literature review and iterative data analysis (holistic and fragmental) let us highlight and outline the key points of digital technology successful employment in SSCX, and, accordingly to build the 10-Co theoretical model. It reflects all the basics of modern SSCX in intersection with technological transformation. Furthermore, it is followed by the 11<sup>th</sup> "Co" that became drastic on the intersection of SSCX and digital technologies: COVID-19, accreting penetration, diffusion and adoption of technologies in sports spectacle culture.

### *Content*

Sports media content embraces various types, volumes and proportions of information addressed to the audience or an end-user.

"Taking into account the absence of fans in stadiums, digital and OTT<sup>1</sup> have become the main trends in sport spectating along with simultaneous use of a second screen. There seems to be a significant shift towards more interactive experiences i.e. being able to engage with other spectators remotely and with in-play engagement on a second screen be it chat forums, betting sites or social media interactions. This second screen will increasingly become the target for advertising and sponsorship activations allowing the main screen to deliver the sporting content" (Stuart Barraclough, personal communication, 05.03.2021).

The concept of "content" is key in this study, because the development of technology has primarily influenced the quality, quantity and accessibility of sports media content (Glebova et al. 2020). This concept partially includes experience in itself, but it also directly influences the building of experience by internal and external responses:

"Fans are overloaded both by the total volume of content but also the fragmentation of the means to find and engage with the content. At present, there

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<sup>1</sup>Over-the-top media services.



are numerous social media platforms, bespoke apps and websites for each team and league, media companies' websites and apps, sports news platforms and apps... As a result, there is a lot of duplication and spectators don't have time or patience to be presented with the same content twice and they certainly don't want to have to sift through content to find something new and engaging. Both time and attention spans appear to be increasingly limited" (Stuart Barraclough, personal communication, 05.03.2021).

Sports events going far beyond just sport, thus, this well-known phenomena is called "Sportainment" (Desbordes and Richelieu 2012, Chavanat and Bodet 2014). Sports spectacle is constantly moving in the direction of pure entertainment. Sometimes sport itself and entertainment are overlapping, blurring the border between, then mix up together.

"A key driver for better SSCX design is the desire to entice people to attend for longer and spend more money on their experiences at each visit. At Spurs, former players and live music are now an expectation in both GA and Premium. They are helping the club attract 1000's fans in the first hour of now extended opening times, as well as retain them for up to an hour post-match. This approach often helps support the traffic congestion on the roads and at stations. Two exchangeable pitches mean the venue can quickly transform from one kind of football to another – NFL. More and more the SSCX design is aimed at customers seeing an event as a fuller day/night out and not just about the 90 minutes of a football match" (Nicholas Brice, personal communication, 06.09.2020).

The entertaining nature of sports spectacle can be enhanced and empowered by technologies as well, as a supplementary source of fun and carefree pastime. For example, immersive technologies or gamification can be used supplementary for the pure pleasure of fans or for switching audience attention.

"I think we are moving to the direction where the sport is more like entertainment, so, sports performance experience, organizations, clubs, rights holders are focused more on entertaining a spectator. LaLiga, the Spanish football league, has a real clear view on this point, it's more about entertainment than about football itself. So, they offer a certain amount of services of entertainment rather than choose football, because on the venue and outside of the stadium and between games they should always interact with the fans, move to fans, giving them an immersion, knowing what fans want. So, moving from sport pure performance to pure entertainment. I think in Europe, in general, we are behind in this kind of things... We have the very old school of sports, they want people to come to the stadium to watch a game and then go home. In the US for a couple of years already, they are consuming events, but basically, the result is not that important, but between they are walking around and have activity, in-venue they are connected, food, drink, so people stand up, walk away, come back to sit down... let's say it is an evening out instead of a sports game. I think we need to see trends that (it is not officially declining but) declining attendance, in order audience is getting older, we need to move in a new era of spectating, to go to pure entertainment" (Stijn Jacobs, personal communication, 08.12.2019).

### *Context*

The circumstances that shape the settings for the sports event and services affect SSCX directly and indirectly. Nowadays, context is mostly built by digital technologies: media, informational background, and online communications, including CRM (customer relations management) and interactions between customers. Recently, moreover, the trend of "digital context" has been even accelerating with the COVID-19 pandemic.

Voss et al. (2016) determine the context in terms of service important and challenging. The context in which SSCX occurs plays a crucial role in how CX is organized, managed, delivered, received, and perceived. And sports industry itself is the base for building the context for SSCX, as the specific industry context (Voss et al. 2016). A deep understanding of the SSCX context allows to manage variables (vary in each particular case) and control the process and quality of CX and CJ.

### *Collection of Data*

The past years have seen unprecedented growth in the ICT economy that has fundamentally altered business models and consumer cultures (Gössling 2020), and SSCX is not an exception. Thanks to digital technologies and big data, marketing becomes more targeted and personalized.

"Data services also enhance the media and commentary offering by providing real-time comparisons against historic datasets to enhance the quality and depth of commentary. Video connected viewing platforms are also potentially changing habits although my personal opinion is that these still need some refining and are yet to have a significant impact. However, being able to interact with other spectators through a video connection whilst watching the same match may become commonplace as the ability for providers to synchronize their streams improves" (Stuart Barraclough, personal communication, 05.03.2021).

"More and more, digital technology is helping inform CX design through the easy collection and analysis of customer data. These tools can add to the more traditional methods of survey and focus groups. We're seeing venues take a closer look at actual customer behaviour and the choices they make in real-time to give clues for new ideas for experiences and develop proactive sales strategies. This strategy can result in more personalized sales communications and higher levels of customer intimacy across the customer journey; a greater capability to be able to develop insights into the 'inner voice' of different types of customer and what drives their behaviour. Innovative venues can then reflect the learning in CX design and drive experience design efforts and the team training and development programs to go with them to ensure a return on the investment through greater customer loyalty and spend" (Nicholas Brice, personal communication, 06.09.2020).

### *Collaboration*

First of all, any sporting event, product or service is a result of collaboration, because it requires the complex interactions of various stakeholders. "Hosting a sporting event itself is a collaboration of multiple stakeholders: government, Local Organizing Committees, event owner [...], sponsors, volunteers, fans and others" (Karina Mukanova, personal communication, 15.03.2021).

Co-hosting is an example of collaboration in the field of sports event management, moreover, it gives an opportunity to "profit respectively" (Mukanova 2020, pp. 392–416). "Co-hosting event with other territorial units, which means the stakeholder is mirrored at each territorial unit and there is a collaboration between these units to host the event jointly. So, in both cases, event hosting and event co-hosting are the examples of collaboration" (Karina Mukanova, personal communication, 15.03.2021).

"In some cases co-hosting allows each host nation fans to attend their home team "at home". This is one of the reasons why some co-hosting alliances are formed so both host nations host the group stage where their home teams are playing. This is especially the case for IIHF Men's World Championships' business model" (Karina Mukanova, personal communication, 15.03.2021).

Collaboration, as a form of synergy, is an interaction or cooperation, expected to give rise to a whole entirely that is greater than the simple sum of its separated parts. It leads to term co-creation (see below).

### *Consolidation*

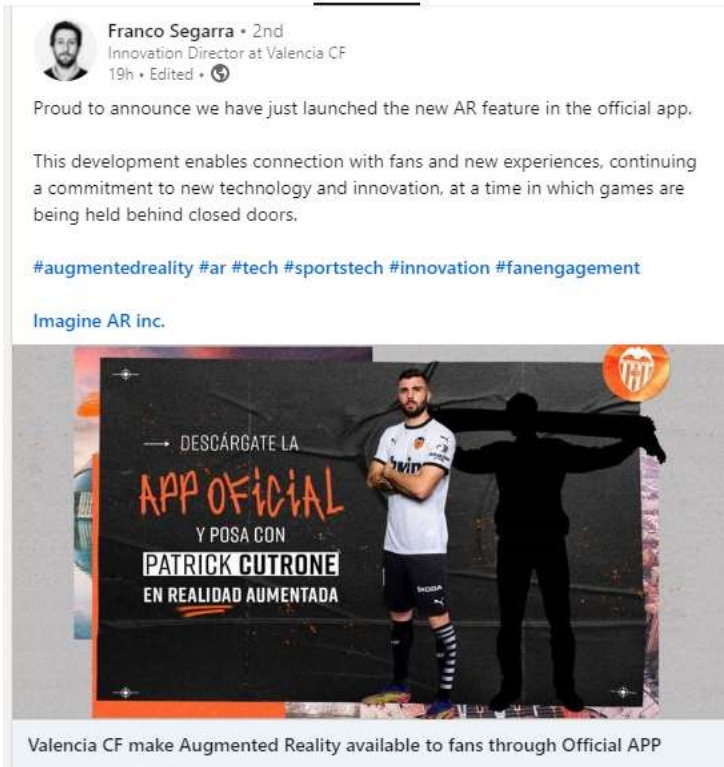
Mobile applications have become the "quintessence" of SSCX (Glebova and Desfontaine 2020), in terms of consolidating all the services and information at a single place, personal screen device, like a smartphone. Nowadays, sports organizations actively develop apps, by constant upgrading and adding new features:

"First of all, the strategy to put the mobile app started in the 2017th and most of the time it aimed to replicate the content published on the web. Now we think it was not the right approach and we should make the app useful in the offline world (stadium, stores, and museum) so, we integrated the loyalty program, this is active now, and it offers money or points for fans that purchase particular brands to develop loyalty. This discount is applied to those who pay online-only, so in 3 years or something about, more than 800,000 EUR and 16,000 members are already involved in this program. It is quite popular and it motivates fan to get the season ticket. The next feature we release is sending of QR code for accessing tickets via mobile. Another useful thing is that mobile app can be used as a payment tool. And with all these tools benefits and data we are going to experiment with what goes better to improve fan experiences. In our case, the mobile app is related to the smart app. We have 9 clubs in 9 countries. And it's useful for local and international campaigns... Mobile app the main channel to interact with fans, mixing online and offline. But there are also other touchpoints important for us, for example, providing ticketing solutions. It's not the only one,

but the main one to interact fans and club" (Juan Iraola, personal communication, 10.12.2019).

Franco Segarra, Innovation Director of Valencia Football Club (FC) has posted on LinkedIn: "Proud to announce we have just launched the new AR feature in the official app. This development enables connection with fans and new experiences, continuing a commitment to new technology and innovation, at a time in which games are being held behind closed doors" (Franco Segarra, personal post in social media, cropped screenshot, Figure 1).

**Figure 1.** Post of Franco Segarra on the LinkedIn 14.03.2021



Source: LinkedIn feed.

Saleh discusses fans today (hinting at the transparency of data, previously inaccessible for followers): "If they have an official application of a club or the team, they can enjoy even more information and details, which before never been shown to fans. All statistics: prices, TV revenues, TV coverage, so, there is something special as well. Its annual report" (Khaled Saleh, personal communication).

### *Co-Creation*

The collective (Jaakkola et al. 2015), social (Lemon and Verhoef 2016) and interactive aspects of SSCX are key drivers of the sports fandom culture.

Jaakkola et al. (2015) argue for the wider relevance of service experience co-creation and connects it to three broader topics in marketing: (1) value co-creation,

(2) foundational sociality in contemporary markets, (3) methods for measuring and managing service experiences.

Verleye (2015) points that from the customer perspective, the co-creation benefits determine the importance of the level of customer role readiness, technologization, and connectivity for generating the co-creation experience.

Woratschek et al. (2014) and Horbel et al. (2016) have disclosed the construct of co-creation, particularly in the sports management field. "There is a concept called "value co-creation" or Sport Value Framework, that describes very well the co-creation or production even of the even by all these stakeholders..." (Karina Mukanova, personal communication, 15.03.2021) (Woratschek et al. 2014, Horbel et al. 2016).

SSCX is a result of co-creation as well. "According to Sport Value Framework, sports spectators are co-producers of the event. If there are no spectators, the element of hosting is missing, because you take into account sports spectators when preparing for the event" (Karina Mukanova, personal communication, 15.03.2021). Moreover, besides, recently Mukanova argued: "Firstly, it is worth mentioning that major sports events have always been "co-hosted" in a way, as the organization of the event is not dependent merely on one stakeholder. The cooperation of various stakeholders makes the event possible, where athletes are the reason of the event happening, the organizers deliver the event, the police and security guards ensure in the overall safety of the event and the fans or spectators produce specific ambience" (Mukanova 2019, Deutscher and Pawlowski 2020). The co-creation among fans themselves is explored by Yechezkel and Williams (2021) in terms of co-watching experiences, bringing the term "togetherness" of SSCX.

Furthermore, the collective and collaborative process of the creation of SSCX leads to a wider range of experiences: "One of the big trends in top-level sports is the development of a much broader range of experiences for spectators over and above the 'basic' concourse-based visitor... Modern venues have always tiered their experiences but have historically relied on the more traditional model of 'Bronze-Silver-Gold'. We are now seeing an evolution to five, six, seven or even more tiers of experience based on casual or formal dining, gastropubs, premium dining, fine dining and other experience differentiators. These creations are driven today much less by social class per se, but more are personal tastes/style, disposable income, and the many different reasons people may want to see an event – i.e., to get a drink and see the event or to spend time, network, relax, entertain clients, socialize, enjoy great food, while maybe only seeing glimpses of sport/music etc. In many cases, we are seeing the event as only part of a broader blend of experiences" (Nicholas Brice, personal communication, 06.09.2020).

### *Connectivity*

Connectivity allows consuming sports and additional content without physical attachment to a particular place or time. Referring to the context, it is important where, when and how information is consumed using mobile devices. Unlike the usual "surfing" the Internet, information consumption occurs in different ways,

sequences and circumstances. Also, the framework of the Internet of Things (IoT) builds a system, enhancing in-stadium experiences (Glebova et al. 2020).

Furthermore, connectivity can be considered as one of the key dimensions of communication: "Connecting spectators in the stadium to those watching remotely will become more common. We have seen some examples during the pandemic but we are yet to see which will succeed in the long run and how they will be managed alongside full stadiums" (Stuart Barraclough, personal communication). Thus, connectivity embraces the social aspect of fandom, essential for sports spectators (Theodorakis 2014, Glebova et al. 2021), providing tools for communication: "Other things we are activating are about we are going to do a prototype, it will be a smart app, which connects fan and club. For example, once a fan is in a stadium, he receives a particular message. So, we are connected to fans via the mobile app. We appreciate these kinds of benefits and apply communication technology on the stadium" (Juan Iraola, personal communication, 10.12.2019).

The internet connectivity occurring all the time and 24/7 content access from anywhere is the point of sports fandom digital transformation:

"Any club or league or team or FC... their fans are not geographically based, so we are not regionalized anymore. Fans are all around the world. So I live half-time of Europe, I was living in Australia, and I am a fan of my Philadelphia teams. I expect to get something you know 24/7 content access is an expectation now, but any time of the day fans are watching somewhere in the world and the ability with social media for clubs to push out stuff regularly 24/7, and then from the news to be the whole thing, is it is one big vicious cycle. The news reporters are collecting information and sometimes pushing out false information or rumours just to push stuff out but that's keeping the fan hungry and wanting more and then the platforms are there to enable it so basically technologies enabled that platform technologies enabled a regional fan to now become a fan... So, technology enabling a real-time message to be dispersed around the world, no matter where you are and then between the press and the clubs and the players they are-adapting it and the players lies do not stop when they step off the field they are embracing technology and they are engaging from a 24/7 perspective" (Ryan McCumber, personal communication, 10.02.2020).

Furthermore, connectivity can be seen as a driving factor in the straightening of fans role in the co-creation experiences (Karina Mukanova, personal communication, 15.03.2021). Fan Controlled Football, as a modern sports phenomenon, is a vivid example of how digital technologies empower spectators in terms of experience co-creation.

### *Complexity*

Gössling (2020) notices that ICTs (information and communication technologies) predict and brings their complexities and controversies, including many phenomena like FOMO (fear of missing out), fear of mobile phone loss, digital dead zones, or low battery status, and conditions ranging from anxieties to depressions and low self-esteem to techno-stress. Glebova and Desbordes (2020a)

tend to identify positive and negative sides of apps impact on SSCX, emphasizing the complex nature of CX and technological impact as well: use of technologies as a multi-dimensional construct.

"We are living in a multi-generational world, where diverse tastes and needs combined with spending power have created a range of new markets for venues to exploit. This means the ways different people want to be entertained is changing and the strategies venues are adopting to develop the innovative and compelling experience to drive up revenue is evolving. For example, in the premium market, there is a trend where some customers don't want to be described as 'corporate guests' or 'hospitality customers' anymore - they want to be treated like 'VIP' or 'Premium' customers. As we have seen evolving in the airline business, even general admittance (or economy) customers are looking for enhanced offerings. One reason for this is that the primary age group for 'old school' hospitality was mainly 40-65, now we are seeing a broader age group of 25-65, with a diverse array of tastes, with many people looking for experiences rather than just hospitality packages. At one major venue, I work with, for example, a simple upgrade in their use of language has resulted in better sales conversions" (Nicholas Brice, personal communication, 06.09.2020).

### *Comfort*

Internet connectivity, user-friendly interfaces, information accessibility, distant services and communications make sport fan experiences more flexible and comfortable in terms of fans time management and physical location mobility and flexibility.

"At leading venues in the UK football sector, we're seeing enhancements such as on-site breweries, pie bakeries, pizzerias, curry houses, guest beers for away supporters along with stand lighting in away club colours – all adding up to a more relevant and resonant range of offers, at different price points to match wallet size" (Nicholas Brice, personal communication, 06.09.2020).

Contracting between stakeholders in the sports industry (especially between private and public sectors) play role in technologies deployment is SSCX (Glebova and Desbordes 2020b), influencing SSCX and UX.

"Governing bodies have a role to play too. UEFA, for example, has introduced the concept of "blue architecture" – which places the emphasis on the need for human well-being and comfort. The blueprint includes sustainable architecture for people, both psychological and physical, which should be an integral feature of any sustainable building design. The focus is on the importance of creating a sense of place and encouraging social interaction, which is especially significant in buildings such as stadia, where the idea of fostering community is important to people. The blueprint suggests also that architecture should include notes of local and regional identity, including that of the home team - even if they are not playing in that match" (Nicholas Brice, personal communication, 06.09.2020).

"It's customer design, it starts even before customer design, it's just having the minimum services than fans expect from any company after we can go further and think about Customer design. We are late and everything is hard because any

stadium requires a really complex environment and the clubs always do whatever they want, often regardless of customer experiences" (Stijn Jacobs, personal communication, 08.12.2019).

"The fan priority to watch live, but the notice appearance of alternative tools and channels for spectating. Probably, it makes experiences more comfortable, but I am not sure. The live experience in a stadium is crazy. If you have gained this experience once, you want to repeat it, but from time to time fans demand better services: to be safe, informed and have any other services they might need" (Stijn Jacobs, personal communication, 08.12.2019).

### *Coordination*

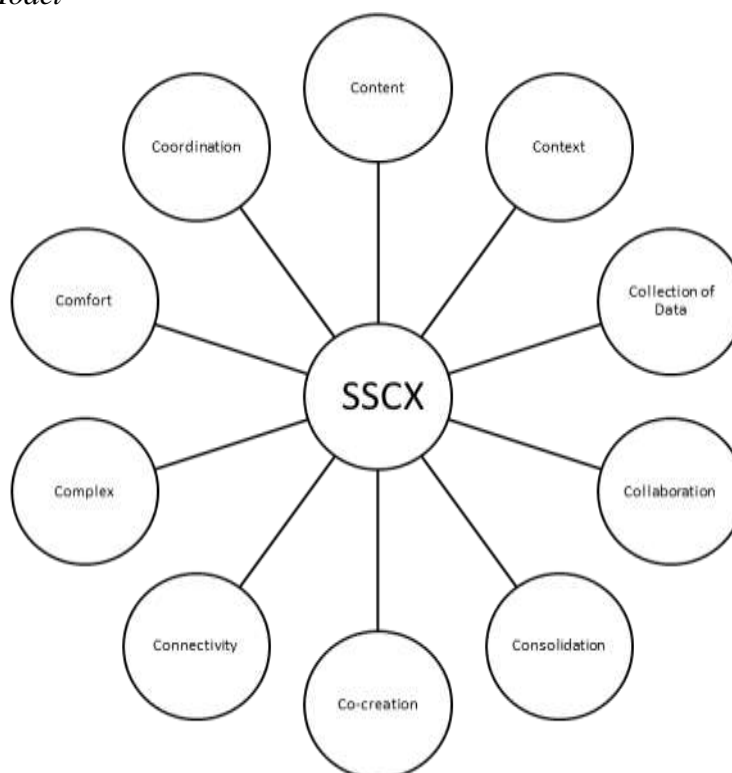
In terms of management, coordination is the capability to run and maintain different elements of an organization or phenomenon all together effectively and efficiently, this approach requires for the modern SSCX:

"Nowadays, the main trend in Sports Spectating in the engagement between the fans and the club. The emotions that the fans are willing to feel for their team need to be determined and fed by the club. Everything that is done in a club's marketing department must be centred on their fans, on that person that would give everything to sustain his club. At Digital Economy, we developed a project called FootballCoin. With that project we are one of the sponsors of Politehnica Iași, a Romanian football club, that plays in the first tier. What we saw during this time, was just... disquieting. The bond between the club and its fans is far away from what it should be. But this is not the only case in Romanian's first league, it's like a sports disease, the lack of interaction on the club's part. They are just not playing their role of the 'game'. And it's sad. Now we're trying to fix this problem and help them in the new digital era, building a new bond between the club and its supporters. It's all about engagement. Marketing is done among people. If you want to know your audience, be your audience just at least one second" (George-Ciprian Enache, personal communication, 21.11.2020).

### *10 Co-Model*

Finally, these 10 elements are united together to build the conceptual model and reflect modern SSCX influenced by emerging digital technologies (Figure 2).



**Figure 2.** 10 Co-Model

Source: primary data analysis, collected by authors.

### COVID-19

"Similar to other sectors, 2020 has been a year like no other that dramatically impacted the Sports industry too. Against the backdrop of COVID-19, the effects impacted global sports with events like Olympics, EU Championships, Cricket World Cup and other major sports leagues postponed or entirely cancelled. Not only the event organizers but the players, media, sponsors and spectators, all felt the impact and had to adapt to the new norm of social distancing, strict protocols, limited ground presence or entire event viewership on e-channels and social media platforms. What was supposed to be live moved to virtual world..." (Faran Niaz, personal communication, 05.03.2021)

Faran Niaz argues about the new norm, opened new prospects and ways of conducting business and sports experience its fair share of adaptation too, outlining the key trends into 2021 are revolved around: (1) 5G wireless and Cloud Computing technology are rolled out during 2021 and with its faster transmission speeds has a significant impact on Sports viewing; (2) with live events taking backstage, esports continues to evolve; (3) sports world is also associated to health and safety standards, at the same time, for any live events, the major requirement is to provide safe and healthy viewing environment for the spectator that is visible such as ample availability of sanitisers, seating arrangement with social distancing as per set SOPs (Standard Operating Procedure). Queuing and exit setups to support safety; (4) live streaming is now a standard for sports viewers rather than an option.

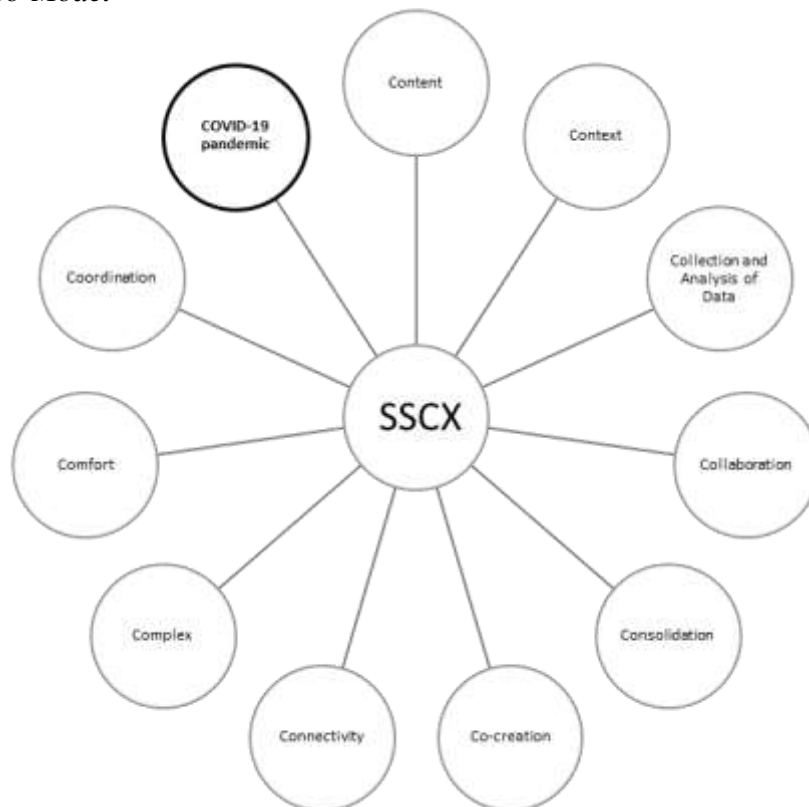
Mukanova notes that because of the pandemic, co-hosted events became single hosted events:

"For example, EHF EURO 2020 was originally supposed to be co-hosted by Denmark and Norway, but due to sanitary restrictions was organized only in Denmark and without spectators. Another example, UEFA EURO 2020 that is co-hosted by 12 cities in Europe was supposed to happen in 2020, and then was postponed to 2021 because of covid-19, and some host cities had to temporarily close up their offices and people had to lose their jobs. Governments had to provide guarantees to host the event in 2021. It caused a lot of expenses and some hosts questioned if they wanted to host the tournament in 2021 and given the sanitary conditions and they could potentially withdraw from hosting" (Karina Mukanova, personal communication, 15.03.2021).

*10+1 Co-Model*

Considering the crucial impact of the COVID-19 pandemic on sports spectacle, including the digitalization perspective, the 10 Co model accepts to contain one more, the 11<sup>th</sup>, "Co", which stand for COVID-19. However, the 11<sup>th</sup> "Co" seems to be a temporary circumstance, thus, the 10+1 co model (Figure 3) is proposed as a temporary one. The 10 co-model (Figure 2) is supposed to be relevant without any attachment to COVID-19 pandemic scenario development.

**Figure 3.** *10+1-Co-Model*



Source: primary data analysis, collected by authors.

## Conclusion

In this paper, we have explored the intersection of SSCX and massively diffused digital technologies, including apps, immersive technologies, advanced big data analytics and others. To the end, we have identified, described and visualized the conceptual model of 10+1 Co, where all 10+1 components contain "co" at the beginning: content, context, collection of data, collaboration, consolidation and analysis of data, collaboration, consolidation, co-creation, connectivity, complex, comfort, coordination, and the last, supplementary, COVID-19 pandemic.

The 10+1 Co Model and related findings may be important for sports innovations policy, practice, and theory, for the profound understanding and improvement of the SSCX digitalization process.

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## References

- Abeza G, O'Reilly N, Reid I (2013) Relationship marketing and social media in sport. *International Journal of Sport Communication* 6(2): 120–142.
- Baricco A (2020) *The game: a digital turning point*. McSweeney.
- Bee C, Khale R (2006) Relationship marketing in sports: a functional approach. *Sport Marketing Quarterly* 15(2): 102–110.
- Biscaia R, Hedlund DP, Dickson G, Naylor M (2018) Conceptualising and measuring fan identity using stakeholder theory. *European Sport Management Quarterly* 18(4): 459–481.
- Chanavat N, Bodet G (2014) Experiential marketing in sport spectatorship services: a customer perspective. *European Sport Management Quarterly* 14(4): 323–344.
- Desbordes M, Richelieu A (2012) *Global sport marketing: contemporary issues and practice*. Routledge.
- Deutscher C, Pawlowski T (2020) The impact of live broadcasting on stadium attendance reconsidered: some evidence from 3<sup>rd</sup> division football in Germany. *European Sport Management Quarterly* (Sep). DOI=10.1080/16184742.2020.1828967.
- Gentile C, Spiller N, Noci G (2007) How to sustain the customer experience: an overview of experience components that co-create value with the customer. *European Management Journal* 25(5): 395–410.

- Gilmore J, Pine II B (2002) Customer experience places: the new offering frontier. *Strategy & Leadership* 30(4): 4–11.
- Glebova E, Desbordes M (2020a) Technology enhanced sports spectators customer experiences: measuring and identifying impact of mobile apps on sports spectators customer experiences. *Athens Journal of Sports* 7(2): 115–140.
- Glebova E, Desbordes M (2020b) The “Clockwork” model for deployment technologies in sports spectacle customer experiences: holistic approach. In *The 28<sup>th</sup> European Association for Sport Management Conference (EASM)*. September, 2020.
- Glebova E, Desfontaine P (2020) Sport et technologies numériques: vers de nouvelles expériences spectateur (Sport and digital technologies: towards new spectator experiences). In M Desbordes, C Hautbois (eds.), *Management du sport 3.0, Spectacle, Fan Experience et Digital*. Economica.
- Glebova E, Desbordes M, Geczi G (2020) Changes in stadia sports spectators customer experiences. In *Physical Education, Sport, Science (PSS), Testnevelés, Sport, Tudomány (TST)*.
- Gössling S (2020) Introduction to special issue. Technology, ICT and tourism: from big data to the big picture. *Journal of Sustainable Tourism* 29(5): 849–858.
- Gulhan TF (2014) Various types of advanced technologies in sports. *IOSR Journal of Sports and Physical Education (IOSR-JSPE)* 1(6): 1–2.
- Hautbois C, Djaballah M, Desbordes M (2019) The social impact of participative sporting events: a cluster analysis of marathon participants based on perceived benefits. *Sport in Society* 23(2): 335–353.
- Horbel C, Woratschek H, Popp B (2016) Value co-creation. In H Corsten, S Roth (eds.), *Handbuch Dienstleistungsmanagement*. Vahlen.
- Jaakkola E, Helkkula A, Aarikka-Stenroos L (2015) Service experience co-creation: conceptualization, implications, and future research directions. *Journal of Service Management* 26(2): 182–205.
- Klaus P, Maklan S (2012) Towards a better measure of customer experience. *International Journal of Market Research* 55(2): 227–246.
- Lee M, Baker M (2017) Technology, customer satisfaction and service excellence. In E Koc (ed.), *Service Failures and Recovery in Tourism and Hospitality: A Practical Manual*, 83–99. Wallingford, UK: CABI.
- Lemke F, Clark M, Wilson H (2011) Customer experience quality: an exploration in business and consumer contexts using repertory grid technique. *Journal of the Academy of the Marketing Sciences* 39(6): 846–869.
- Lemon KN, Verhoef PC (2016) Understanding customer experience throughout customer journey. *Journal of Marketing* 80(6).
- Liu S (2012) The impact of forced use on customer adoption of self-service technologies. *Computers in Human Behavior* 28(4): 1194–1201.
- Morgan NA, Rego LL (2006) The value of different customer satisfaction and loyalty metrics in predicting business performance. *Marketing Science* 25(5): 426–439.
- Morosan C, DeFranco A (2016) It’s about time: revisiting UTAUT2 to examine consumers’ intentions to use NFC mobile payments in hotels. *International Journal of Hospitality Management* 53(Feb): 17–29.
- Mukanova K (2019) *Analysis of co-hosted major single sport events: challenges and opportunities*. Unpublished Master’s Dissertation. Swansea, United Kingdom: Swansea University.
- Mukanova K (2020) Coorganisation de grands événements sportifs internationaux: défis et opportunités (Co-organization of major international sporting events: challenges and opportunities). In M Desbordes, C Hautbois (eds.), *Management du Sport 3.0—Spectacle, Fan Experience, Digital*, 392–416. Economica.

- Ratten V (2018) *Sports innovation management*. Routledge.
- Schut P, Glebova E (2020) Typology of Roland Garros mobile application 2018 users. In 28<sup>th</sup> EASM Conference, Virtual, European Association for Sport Management. September 2020.
- Shank MD (2005) *Sports marketing: a strategic perspective*. Pearson Prentice Hall.
- Steward B, Smith ATC, Nickolson M (2003) Sport consumer typologies: a critical review. *Sport Marketing Quarterly* 12(4): 206–216.
- Theodorakis ND (2014) Customer experience in spectator sports. In J Kandambully (ed.), *Customer Experience Management: Enhancing Experience and Value through Service Management*, 1<sup>st</sup> Edition. Kendall Hunt Publishers Editors.
- Verhoef P, Lemon K, Parasuraman AP, Roggeveen A, Tsiros M, Schlesinger L (2009) Customer experience creation: determinants, dynamics and management strategies. *Journal of Retailing* 85(1): 31–41.
- Verleye K (2015) The co-creation experience from the customer perspective: its measurement and determinants. *Journal of Service Management* 26(2): 321–342.
- Voss C, Perks H, Sousa R, Witell L, Wunderlich N (2016) Reflections on context in service research. *Journal of Service Management* 27(1).
- Woratschek H, Horbel C, Popp B (2014) Value co-creation in sport management. *European Sport Management Quarterly* 14(1): 1–5.
- Yechezkel A, Williams J (2021) *Co-watching: creating the power of togetherness*. Sports Innovation Lab (SIL), Scenic.
- Yu K, Trail G (2011) A conceptual framework for understanding relationships between sport consumers and sport organizations: A relationship quality approach. *Journal of Sport Management* 25(1): 57–69.



## **The Economy of Greece and the FIFA Ranking of its National Football Team**

*By Gregory T. Papanikos\**

*The purpose of this study is to compare the performance of the Greek economy with the FIFA ranking of the Greek National Football Team in order to find out whether there exists some sort of statistical association. The period under consideration starts with the establishment of the European and Monetary Union in 1992 and ends with the current year of 2021. In 1992, FIFA started to rank national football teams which restricts the extent of time to be used in this study. The descriptive evidence presented in this paper shows that there exists strong positive association between the level of real Gross Domestic Product (GDP) of Greece and the ranking of its national football team.*

**Keywords:** *FIFA, Greece, Football, GDP, European Union, National Teams.*

### **Introduction**

Most Greeks would agree that 2004 was a year to be remembered by Greece's current and future generations. It was an exceptional year. The Greek economy was booming, and benefited from its full membership in the Eurozone; a process which started much earlier in 1992 and was completed by the adoption of the Euro in 2002. In the beginning of the year of 2004, the city of Athens, as well as other Greek cities, were preparing to welcome the youth of the world to celebrate, once again, the modern Olympic Games in its birthplace. Athens in the beginning of 2004 had a brand-new airport, a brand-new ring road, a brand-new metro system and many other smaller and bigger infrastructures which were built either because they were required by the International Olympic Committee (IOC), or by Greece's own initiative. New stadiums were built and the old were renovated. There was great optimism, as well as vast and prodigious expectations that things will become even better in terms of economic growth and the development of sports. These high prospects were further boosted by the unexpected startling success of the Greek National Football Team, which, against all odds, won the European Trophy, beating the national team in the final game of the hosting country, Portugal. And, since in Greece all the bad and good things come in triads, Greece won the Eurovision Song Contest in 2004. What a year 2004 was!

Many Greeks committed hubris by believing that they were Gods' chosen people. It was a classic example of an ancient Greek tragedy. Metaphysically, nemesis and punishment followed. The economy disarrayed when the Great Recession hit Greece in 2009, and as a coincidence along came the failures of the Greek National Football Team. The former is measured by the Gross Domestic

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Product (GDP) and the latter with the *Federation Internationale de Football Association* (FIFA) rankings of national football teams.

This paper relates Greece's economy with the ranking of its national football team using the FIFA ranking available since 1992, which is the starting year of this paper's analysis. The FIFA methodology of rankings has changed in 1999, in 2006 and again in 2018. This methodology is not discussed here; I have briefly examined this literature and methodology in Papanikos (2017 and 2014). In the former study, I developed an *ad hoc* econometric model to explain the success and failures of national football teams in the finals of the 2014 World Cup hosted by Brazil. I found that political, economic and demographic variables were able to account for most of the variation of national football performances. In the latter study, (Papanikos, 2014), I developed an econometric model (a sort-of Cobb-Douglas production function) to examine the Greek National Football Team performance from 1960 to 2014. It was found that the performance of the Greek national team depends on the capital-labor ratio. The higher the accumulation of capital, the better the performance by the national football team. Other variables were also found important, e.g., the experience gained by playing official games, the coach and the participation in the final rounds of the World and European Football Cups organized by FIFA and UEFA respectively. UEFA is the most important regional football federation. It organizes competitions for national teams as well as the champions league of individual teams which are allocated according to the national football leagues. On the history and organization matters of UEFA, see among many other studies such as Nunes and Valerio (2020), Zambom-Ferraresi (2017) and Zawadzki (2015).

This paper is descriptive and no theoretical model is developed to test the hypothesis of any association between the performance of the economy and the achievements or failures of national football team. This is primarily due to the lack of reliable data both on the performance (the FIFA ranking is not the best approximation to be used in an econometric model) and of the determinants of the performance, primarily the public finances of national football. Instead, raw data are presented and discussed which reveal some interesting trends and associations between the performance of the economy and the achievements of the Greek national team football.

The paper is organized as follows: the next section provides an overview of the Greek macroeconomic performance since 1992. From an economic point of view, this period has great interest because Greece adopted the Euro as its national currency which has had significant effects on Greek economic growth and monetary stability. This issue is not examined in this paper, but those who are interested may find my econometric analysis in Papanikos (2015) informative. In the subsequent section, the FIFA rankings of the Greek National Football Team are discussed from the first year available in 1992. The last available observation during the writing of this paper was April 2021. The national football team's performance is discussed in relation to the economy's performance is discussed in the following section. The last section provides some conclusions and a direction for future research.



## The Greek Economy in the EMU Period

In 1992 the European Union (EU) launched its biggest project ever called Economic and Monetary Union (EMU) with an objective to:<sup>2</sup>

- Coordinate economic policy-making between member states.
- Coordinate fiscal policies by limiting government debt and deficit.
- Follow an independent monetary policy run by the European Central Bank (ECB)
- Supervise financial institutions within the Euro area by applying single rules.
- Introduce a common currency to be used by all member states.

The rationale behind this deepening of economic integration was (a) higher economic growth (more jobs) and (b) monetary stability (lower inflation). The herculean task of the EMU was the introduction of a common currency-the Euro-which came into circulation 1 January 2002 in twelve EU countries; Greece was one of them. Today, 19 of the 27 EU countries are using Euro as their national currency. In Papanikos (2015), I have examined the economic growth effects of introducing the Euro. The conclusion of the study was that the Euro was not a problem, but its over-evaluation had negative impacts on some economies, including the Greek one. This important issue goes beyond the scope of this paper.

**Table 1.** *Greek Economic Growth, 1992-2021*  
(GDP is measured in billions of constant 2015 of euro)

YEAR	GDP	GDP (%)	YEAR	GDP	GDP (%)	YEAR	GDP	GDP (%)
1992	148.25	0.70	2002	196.64	3.92	2012	180.56	-7.08
1993	145.88	-1.60	2003	208.03	5.79	2013	175.61	-2.74
1994	148.80	2.00	2004	218.56	5.06	2014	176.84	0.70
1995	151.92	2.10	2005	219.87	0.60	2015	176.11	-0.41
1996	156.27	2.86	2006	232.30	5.65	2016	175.25	-0.49
1997	163.28	4.48	2007	239.90	3.27	2017	177.49	1.28
1998	169.64	3.89	2008	239.10	-0.34	2018	180.26	1.56
1999	174.85	3.07	2009	228.81	-4.30	2019	183.61	1.86
2000	181.71	3.92	2010	216.28	-5.48	2020	167.09	-9.00
2001	189.21	4.13	2011	194.33	-10.15	2021	175.48	5.02

Source: Economic Commission (Ameco Data Base).

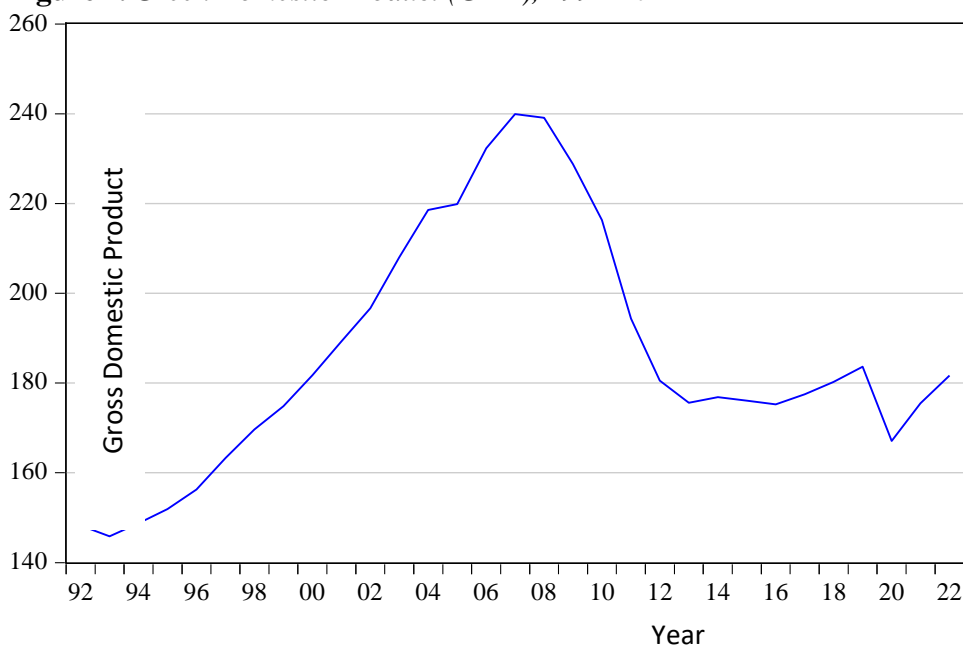
What was the performance of the Greek economy since 1992? Table 1 reports total and growth rates of GDP. Per capita income could have been used, but given that the population has not changed much, the analysis would have been the same.

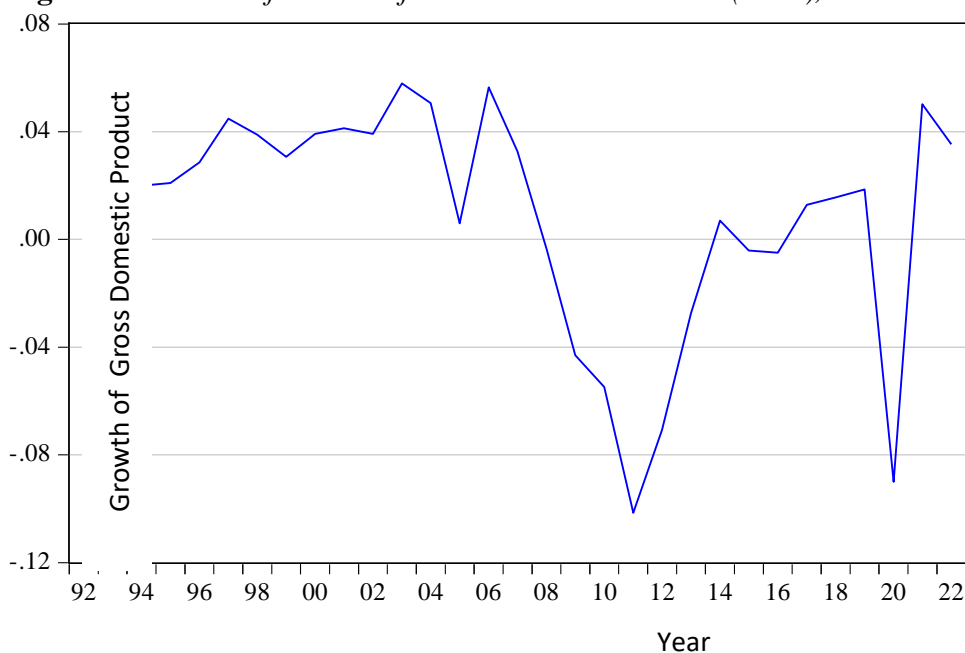
<sup>2</sup>See the information provided in the official website of the European Commission -the governing body of the European Union- available at [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/economic-and-monetary-union/what-economic-and-monetary-union-emu\\_en](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/economic-and-monetary-union/what-economic-and-monetary-union-emu_en).

In some cases, using population statistics may not capture the true value of the economy because of Greek outmigration due to the economic crisis of the 2010s, which underestimates the true value of per capita income when it is measured as the GDP-population ratio.

The following two figures depict, in a better way than the table, the oscillations of GDP and GDP growth during the 1992-2022 period. The last two years (2020 and 2021) are preliminary forecast values of the European Commission which is the source of the data used in this study. Figure 1 shows a much-expected uprising in GDP after the establishment of the EMU in 1992 and the introduction of the Euro in 2002. As shown in Figure 2, the Greek economy experienced a positive growth rate. But in 2008, the Greek economy was hit hard by the Great Recession leading to an unprecedented loss of output for peace years. Never before the GDP growth rate was so low, which, in 2011, marked a decline of 10.15%. At the time that the Greek economy was emerging out of the recession, coupled with the negative rates of GDP growth, the pandemic hit its economy very hard, as it did all the major European countries, as I have explained in Papanikos (2021). The expected loss of output in 2020 is 9%, which most probably will be realized, but there are serious doubts that the European Commission's forecast of 5.02% for 2021 will be ever achieved given the continuous negative impacts of the pandemic on the Greek economy.

**Figure 1.** *Greek Domestic Product (GDP), 1992-2022*



**Figure 2.** *The Rate of Growth of Greek Domestic Product (GDP), 1992-2022*

The data in Table 1 are presented in blocks of three decades, which, as by coincidence, have their own important economic phenomenology, to use a philosophical term. The first decade of the period under investigation in this paper (1992-2001) is marked by the efforts to establish the EMU and better prepare the economies to adopt a new common currency. The second decade (2002-2011) of the data set coincides with the introduction of the new currency, 1 January 2002, and, at the end of the decade, with the beginning of the so-called Great Recession. The next decade (2012-2021) begun with the end of Great Recession, but it ended with the beginning of the pandemic effect, which its impact is expected to continue for the years to come.

Which of the three decades was better? Undoubtedly the second decade, as is shown in Table 2, which compares the summary statistics of GDP of the three ten-year periods. An important indicator is the range of difference between the maximum and the minimum value of output produced in the decade. During the 2002-2011 period, the Greek economy produced an extra 45.57 billion euro if the maximum and the minimum GDP of the period are compared. The decade's average GDP was 219.38 billion of constant 2015 euro much higher than the first- and third-decade's average of 162.98 and 176.83 billion respectively. The last three measures are also important indicators of the higher moments of the GDP distribution showing that there were statistically significant differences between the three decades.

**Table 2.** Summary Statistics of Greek GDP, 1992-2021

Statistic	1992-2021	1992-2001	2002-2011	2012-2021
Average	186	162.98	219.38	176.83
Minimum	146	145.88	194.33	167.09
Maximum	239	189.21	239.90	183.61
Range	93	43.33	45.57	16.52
Standard Deviation	27	15.28	16.16	4.39
Skewness	0.54	0.45	-0.27	-0.73
Kurtosis	2.37	1.83	1.89	3.82

Recapitulating this section's discussion, any student of economics would expect the economy to be subject to economic cycles. Nothing remains stable in the economy; there are ups and downs, and good and bad years. The 1992-2021 period of the Greek GDP cycles constitute a textbook example. The economy experienced an expansion in the 1994-2008 period pulling the economy out of its tough years of 1992-1993. It reached a GDP peak in 2008 of 239 billion euro before the economy started to contract again. Just before it started to recover, the economy was hit by the negative unexpected shock of the pandemic, which had and still has devastating economic (measured in output loss) and non-economic effects (measured in life losses). Many economists expect that once the pandemic is over, the Greek economy would be able to return to its long-term positive economic growth rates.

### **FIFA Ranking of the Greek National Football Team**

FIFA reports its football rankings of national teams every month. All data reported and analyzed here are end-of-year (December) rankings. The number reported in Table 3 is the ranking of the Greek National Football Team relative to all national teams which are members of FIFA. In order to increase its rank, the Greek team must outperform the other teams. Table 4 reports summary statistics for the total dataset, as well as for the three decades separately.

Similar to the economy's performance, the best decade is the second of the dataset, 2002-2011. The average position of this period was 20 (the Greek National Football Team was ranked in the 20<sup>th</sup> place, meaning that 19 teams were ranked higher and all the others -more than 100 teams-, below) which is considerably different from the other two decades, the first and the third, which both had a similar average ranking of 39 and 38 respectively. In two years of the second decade (2007 and 2010), Greece reached the highest ever rank of 11<sup>th</sup> place in the world, which was also achieved in the first year (2012) of the third ten-year period. However, during the last decade, the Greek National Football Team lost 43 positions in the FIFA ranking from the 11<sup>th</sup> place in 2012 to the 54<sup>th</sup> in 2019.

**Table 3.** *FIFA Rank of the Greek National Football Team*

YEAR	FIFA RANK	YEAR	FIFA RANK	YEAR	FIFA RANK
1992	31	2002	48	2012	11
1993	34	2003	30	2013	12
1994	28	2004	18	2014	24
1995	34	2005	16	2015	41
1996	35	2006	16	2016	42
1997	42	2007	11	2017	47
1998	53	2008	20	2018	43
1999	34	2009	13	2019	54
2000	42	2010	11	2020	53
2001	57	2011	14	2021	51

**Table 4.** *Summary Statistics of FIFA Ranking*

Statistic	1992-2021	1992-2001	2002-2011	2012-2021
Average	32	39	20	38
Worse Position	57 (2001)	57 (2001)	48 (2002)	54 (2019)
Best Position	11 (2007, 2010, 2012)	31 (1992)	11 (2007, 2010)	11 (2012)
Range	46 (57-11)	26 (57-31)	37 (48-11)	43 (54-11)
Standard Deviation	15.2	9.5	11.4	16.27
Skewness	-0.01	0.86	1.74	-0.76
Kurtosis	1.67	2.48	4.91	2.04

Of interest are the differences in the standard deviation (showing stability), as well as the ones of the higher moments of the rank distribution of skewness (showing symmetry of the distribution) and kurtosis (showing thickness). Ideally, a team aims to not only achieve high rank, but at the same time stay there for a long period, i.e., minimize the standard deviation. This was not achieved by the Greek National Football Team in any of the three decades under consideration. The standard deviation was high, something which is also indicated by the high range of the positions in each decade. The Greek team is characterized by being relatively unstable in its performance.

This instability is better shown in Figure 3 which graphs the inverse of the FIFA ranking. The reported data in Figure 3 are transformed values of the FIFA ranking, by being divided by 100, by the position of the Greek National Football Team according to FIFA ranking. For example, the 11<sup>th</sup> position in the FIFA ranking takes the value of close to 10 which is the higher value of this transformed presentation. On the other hand, the 50<sup>th</sup> position will take the value of 2. This is a better way of presenting because an upward move along the curve is interpreted as an improvement.

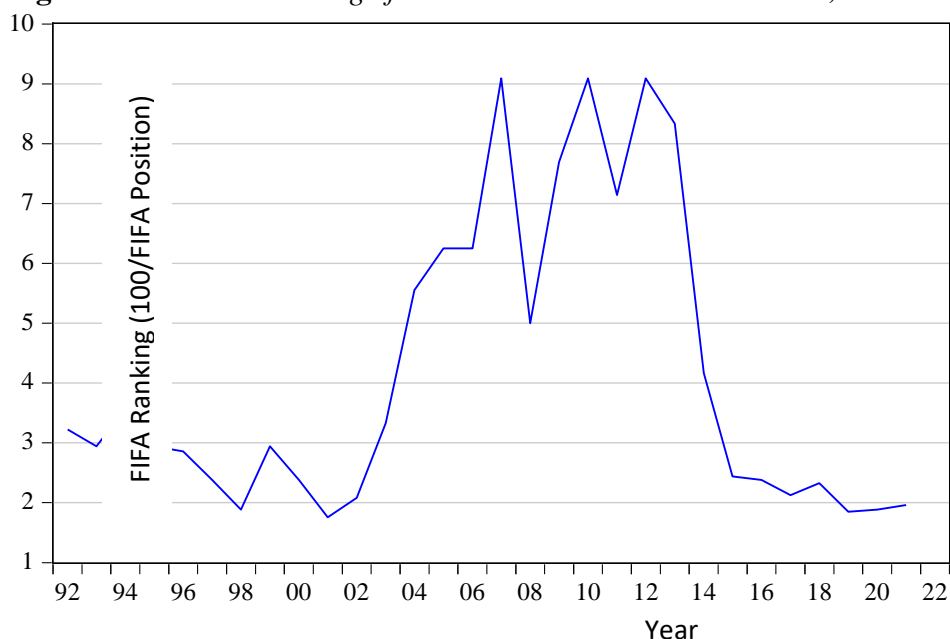
**Figure 3.** *The FIFA Ranking of the Greek National Football Team, 1992-2021*

Figure 3 shows remarkable differences between the three decades which are similar, but not identical, to what was observed in the previous section for GDP. During the first decade, the ranking remained relatively stable, which is also demonstrated with the low range and standard deviation of this decade, relative of the other two decades (see Table 4). The next decade (2002-2011) is the golden period of Greek football performance. In 2004, Greece won the European Trophy; an achievement to be remembered for many years to come. In the last decade, the rankings of the Greek National Football Team are declining.

Summarizing this section, the FIFA ranking of the Greek National Football Team shows great variations. Its best decade was the second one (2002-2011), which, as a coincidence, overlaps with the best performance of the Greek economy. One is then prompted to ask the question whether the two (the economy and football performances) are somehow related. This question is addressed in the next section of the paper.

### **The Association between the Economy and National Football Performance**

Many economists and non-economists have argued against the use of GDP as a measure of national or social welfare. Nobody disagrees that the index of GDP is not a perfect measure, and better measures can be envisaged which better account for what one may call national welfare or happiness or pride or eudaimonia.

The difficulty, however, lies on the fact that these other “measures” cannot be measured, i.e., they cannot be expressed in quantitative terms. Even worse, people’s definition of national welfare differs. All these difficulties may be surpassed if we assume that the GDP is a measure not only of the total number of goods and services produced in a country in a given year only, but it might be a

good index of the eudaimonia in a society. When a nation or society is doing very well in terms of its culture, sports and other spiritual activities, then its economy might also do well. In a happy society, where every citizen who is proud to belong to such a nation, has an incentive to work harder and produce more output, avoiding all activities which undermine the economic growth of the country. Euphoria and optimism are important determinants of private investment and therefore economic growth. In that sense, I consider success in sports and culture as a determinant of economic growth.

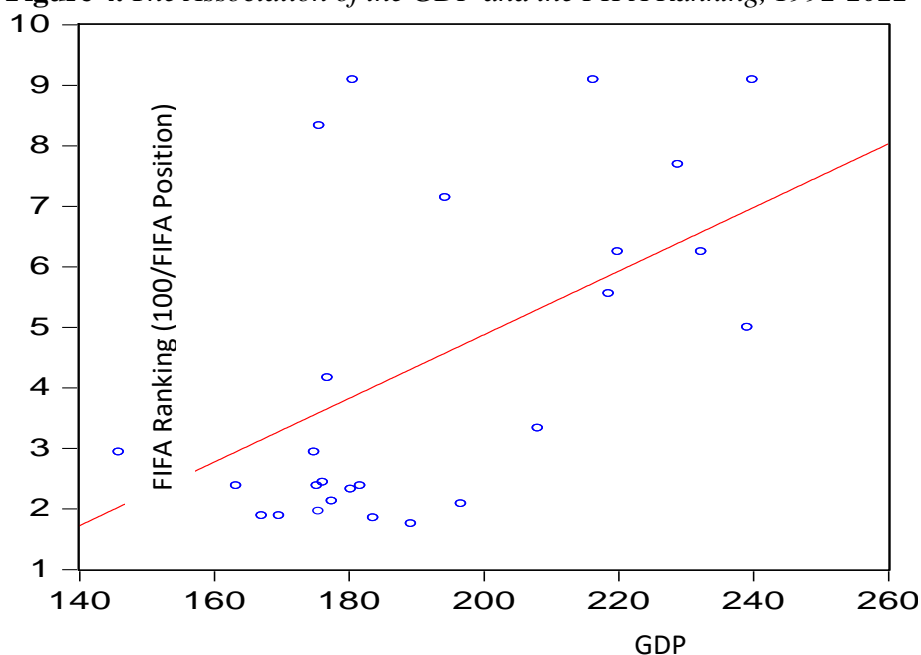
But it works the other way as well. When the economy is booming, more resources can be diverted into sports and cultural activities, and therefore creates the necessary conditions for better national performance in such activities. For these reasons, it is very difficult to draw a deterministic causal model of the relationship between sports and the economy, or in general, culture (which includes sports) and the economy. We can only talk about positive or negative associations (correlations). In this section of the paper, I look at one such association, namely the performance of the national football team and economic growth. If the above arguments have any validity, this association should be positive.

In the previous two sections, the graphics and the raw data hinted that there might be a positive association or relation between GDP and the performance of the Greek National Football Team. Separating the sample into three decades, it becomes clear that in the last two decades the GDP and the football performance have moved in parallel. Only in the first decade it appears that there was no relation. The economy was doing relatively well, but football's performance was relatively stable.

Figure 4 reports the scatter diagram of FIFA rankings and the GDP level for the entire 1992-2021 period. Also, a regression line has been inserted which better depicts the average association between the two variables.

Figure 4 clearly depicts a strong positive association of the FIFA ranking and the level of GDP. It appears that when the economy is doing well, the Greek football at the national level is also doing well. The correlation coefficient between the two variables was +0.577. Using a simple logarithmic regression specification, it was found that a 10% increase in GDP results to a 2% climb in the FIFA ranking.

Figure 4 also reveals that the exceptional positions of the 11<sup>th</sup> place in the FIFA ranking in the three years mentioned above (2007, 2010, 2012) appear in the graph as outliers along with the 12<sup>th</sup> position achieved in 2013. For some reasons, these years showed there was an overshooting in the performance of the Greek National Football Team reflecting in part the legacy of the great success of 2004 when the Greek National Football Team won the European Trophy. After all, the beauty of the game is that sometimes the underdogs may perform very well. If outliers are excluded then the association between the economy and the national football performance becomes stronger. The correlations coefficient from +0.577 increases to +0.6503.

**Figure 4.** *The Association of the GDP and the FIFA Ranking, 1992-2022*

The above analysis does not show causation and the relation might be purely spurious. However, even though arguments could be made that the causality may run both ways, the causality from the economy to football has a solid theoretical foundation. After all, football is an expensive leisure and cultural activity, and can be satisfied better if the economy is able to allocate public funds. The richer the economy (the higher the GDP), the higher the funds available for sports (football) development, and therefore the higher the performance of its national football team. Even exceptions do exist; on average, rich countries do have better performing national football teams as I demonstrated in my other study (Papanikos, 2017).

## Conclusions

There appears to be a strong association between the performance of the economy and the achievements of the national football team. A 10% increase in Greece's GDP is associated with an increase of 2% in the FIFA ranking of its national football team. The correlation coefficient is +0.577 for the entire period, but if we exclude the outliers in performance then the correlation coefficient increases to +0.6503.

The entire period of 1992 to 2021 was divided into three ten-year periods. It appears that with the exception of the first decade, the football performance was associated with the performance of the economy. A difference is observed in the first decade (1992-2001) during which the performance of the Greek team remained stable when the economy was increasing.

The purpose of the study was not to draw conclusions as of the causal relationship between the two variables. Theoretically, the causality may run both



ways even though the most probable one is the economy to affect the national football performance. This requires further research, but the descriptive (graphical) depiction of the data show that the national football performance usually follows the previous years' economic growth performance with a lag. Testing for causality is left for a future research.

## References

- FIFA (2021) *Revision of the FIFA/Coca-Cola world ranking*. Retrieved from: <https://img.fifa.com/image/upload/edbm045h0udbwkqw35a.pdf>. [Accessed 15 April 2021]
- Nunes AB, Valério N (2020) UEFA: a successful pan-European organization during the cold war. *Athens Journal of Sports* 7(1): 55–76. DOI=10.30958/ajspo.7-1-4.
- Papanikos GT (2014) An econometric evaluation of the performance of the Greek national football team. *Athens Journal of Sports* 1(4): 233–246. DOI=10.30958/ajspo.1-4-3.
- Papanikos GT (2015) The real exchange rate of Euro and Greek economic growth. *The Journal of Economic Asymmetries* 12(2): 100–109.
- Papanikos GT (2017) Economic, population and political determinants of the 2014 World Cup match results. *Soccer & Society* 18(4): 516–532. DOI=10.1080/14660970.2015.1067799.
- Papanikos GT (2021) The European Union's recovery plan: a critical evaluation. *Athens Journal of Mediterranean Studies* 7(2): 85–102. DOI=10.30958/ajms.7-2-1.
- Zambom-Ferraresi F, García-Cebrián LI, Lera-López F (2017) Sports results measurement and efficiency in UEFA Champions League. *Athens Journal of Sports* 4(4): 291–312. DOI=10.30958/ajspo.4.4.4.
- Zawadzki K (2015) Euro 2012 in Gdansk, Poland. Is it worth using public funds? *Athens Journal of Sports* 2(2): 85–98. DOI=10.30958/ajspo.2-2-2.

