

# Digital and sport

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Amélie OUDÉA-CASTÉRA, Minister for Sport and the Olympic and Paralympic Games

## 06 Introduction

Michel CADOT, Interministerial Delegate for the 2024 Olympic and Paralympic Games and Chairman of the National Sports Agency

## **THE 2024 OLYMPICS: A CONCENTRATION OF DIGITAL TECHNOLOGIES ACTORS,**

## 09 **Designing sustainable and effective innovation for the Paris 2024 Olympic and Paralympic Games**

Bruno MARIE-ROSE & Marion GAUFFRIDY

Paris 2024 is placing innovation at the heart of its strategy in order to create sustainable and effective solutions to ensure the success of the event.

This strategic approach aims to design and implement solutions that not only meet the immediate requirements of the event, but also establish a lasting legacy for future generations. The focus is on creating innovative technologies and processes that minimise the environmental footprint, optimise operational efficiency and enhance the overall experience for participants and spectators.

## 14 **Securing the 2024 Olympic Games: what role for technology?**

Julie MERCIER

The sheer scale of the Paris 2024 Olympic and Paralympic Games (with almost 15 million spectators expected) and their philosophy - the Games at the heart of the city - mean that the security challenges they present are unprecedented, and are exacerbated by the very high level of the threat.

While the mobilisation of the internal security forces and, more broadly, of all the players in the security continuum (municipal police forces, private security players, etc.) will be unprecedented, this article explains how technology will also contribute to meeting this challenge, thanks in particular to the opportunities offered by the law of 19 May 2023, without, however, denying the persistent legal and societal challenges.

## 20 **Frequencies and the Paris 2024 Olympic and Paralympic Games**

Gilles BRÉGANT & Christophe DIGNE

For the first time in 100 years, France will be hosting the Summer Olympic Games in Paris, from 26 July to 11 August 2024. But unlike the 1924 Games, the success of this global event will depend on careful management of the radio frequency spectrum, as wireless devices have become ubiquitous at competition venues. The contribution of the Agence nationale des fréquences (ANFR) to the organisation of the Paris Olympic and Paralympic Games (JOP) has been a major programme for the Agency since 2020.

This article presents the actions, organisation and resources implemented by the Agency to prepare for the 2024 Olympic and Paralympic Games, in close collaboration with the Paris 2024 Organising Committee for the Olympic and Paralympic Games (COJOP) and the Interministerial Delegation for the Olympic and Paralympic Games (DIJOP).

## **DIGITAL TECHNOLOGY FOR CONNECTED ATHLETES**

### **26 Digital technology for high performance**

Interview with **Éric LABOUCHET**

by Bertrand **PAILHÈS**

The Institut National du Sport, de l'Expertise et de la Performance (INSEP) was created in 1975 and is a major player in top-level sport in France. Located on a 28-hectare site in the Bois de Vincennes, with numerous sports facilities, including the famous Halle Joseph Maigrot for indoor athletics and a former velodrome now used for reathletisation, the Institute has for some years now had a team in charge of data and digital tools, made up of around twenty staff and led by **ÉEric Labouchet**, head of the digital development unit.

### **33 Mathematics at the service of sports performance**

**Amandine AFTALION**

Using a model that relies on motor and motivational control of propulsive force to optimise energy expenditure, effort and final time, we determine how runners should best adapt their pace to achieve the best performance.

### **39 Individual physical performance: the golden rules for protecting athletes' data**

**Stéphanie SAULNIER**

Improving and optimising individual physical performance is a requirement of professional sportsmen and women and top-level athletes.

Players in the French sports ecosystem use devices to measure the individual physical performance of their athletes. These systems collect a wide range of data, including health data, which is integrated into performance databases. Regulations on the protection of personal data (the General Data Protection Regulation and the Data Protection Act) provide a framework for their processing.

### **45 Using data to create a high-performance sports environment at a professional football club?**

**Arnaud MAZIER & Damien COMOLLI**

In the world of professional soccer, clubs are at the heart of a complex economy that goes beyond the sporting aspect of performance.

With the rise of physical and video sensors, data brokers and practices using mathematical modelling, the collection and use of data to develop sporting performance has increased since 2000-2010. Data is an invaluable tool for helping professional soccer clubs to create an environment conducive to high sporting performance, by optimizing recruitment or tracking individual player performance in the service of a style of play identifiable by its supporters.

Toulouse Football Club (Téfécé) has enjoyed some great moments since its creation, returning to the elite in 2022 and winning another Coupe de France in 2023. Le Téfécé is a concrete example of this, having succeeded in using data effectively for both sporting and economic reasons, and attracting a growing fan base.

## **THE SPORTS ECONOMY IN THE AGE OF THE DIGITAL REVOLUTION**

### **52 The economics of TV rights, between piracy and market evolution** Raphaël BERGER

Holders of sports rights face two main challenges: piracy and changes in the audiovisual landscape.

Piracy, facilitated by the Internet, leads to significant financial losses. To counter this, the law has strengthened the anti-piracy resources of the Autorité de Régulation de la Communication Audiovisuelle et Numérique (Arcom), enabling rights holders to block illegal sites. However, some users circumvent these blocks by modifying their DNS or using a VPN.

At the same time, developments in the audiovisual market, with the emergence of new players such as Amazon, are calling into question the business model of sports rights holders, particularly where television broadcasting rights are concerned. Sporting events bring us together and their broadcasting contributes to our individual practice, through a knock-on effect or more directly by funding amateur sport. The technical and economic issues facing rights holders are also social issues.

### **62 The legacy of the Olympic Games: Paris 2024** Wladimir ANDREFF

After the economic impact, the long-term legacy of the Olympic Games has become a major concern. It includes social and environmental dimensions, tangible infrastructure and facilities, intangible effects and even financial effects (debt). The concept of legacy has given rise to much discussion and debate, but the empirical studies devoted to it are few and far between and mainly descriptive. The question of appropriate indicators for measuring inheritance has not been settled. The cost-benefit analysis (CBA) required is unfamiliar to non-economists and consultancies, and is therefore little used. A CBA is planned for the end of the Paris 2024 Olympics.

### **70 The economics of sport: issues and prospects** Christophe STROBEL, Clément PLETINCKX & Perrine BEAUVOIS

With an economic weight of 2.6% of GDP, the sports economy is a growth driver with both social and sustainable dimensions. The excitement generated by the 2024 Olympic and Paralympic Games is an opportunity to influence both demand and supply. This is the ambition of the heritage plan launched by the government in 2019. However, given the highly heterogeneous nature of the players involved, it is essential to strengthen the links between the various stakeholders, be they professional federations, distribution companies or companies that produce in France, but also the players in the sports movement (sports federations, clubs,

associations, etc.). The sports industry contract signed in 2016 between the government and these players is designed to support this structuring. The new multi-year roadmap signed in March 2024, for 2024-2026, goes even further, by accelerating the professionalisation of the sector, strengthening innovation and industrialisation, while encouraging the promotion and projection of companies internationally.

**80 Geopolitics of sport**

Pascal BONIFACE

Modern sport, and in particular major international sporting competitions such as the Olympic Games and the Football World Cup, have had a political dimension from the outset, supporting both the quest for international harmony and the enhancement of the status of nations in the light of the conflicts of the 20th century. With the rise of globalisation and the proliferation of states, the sporting dimension is now an integral part of the grammar of geopolitics, and young states are joining FIFA and the United Nations at the same time. Sport, through its competitions and even more so through its stars, embodies a 'soft power' that underpins the influence of states, to the extent that medal rankings at the Olympic Games have become a marker of national power. Finally, it represents an opportunity to build a national narrative that is visible to the world, as was the case at the Sochi and Beijing Olympics, or to reveal Qatar's strategic position on the world map.

## **SPORT, A PLAYGROUND**

**85 MPG, the friends' game that digitised  
the French football championship**

Interview with Martin JAGLIN  
by Bertrand PAILHÈS

Founded in 2011, MPG (Mon Petit Gazon) is the leading provider of fantasy league games based on the French professional football league (Ligue 1). Bringing together several hundred thousand people every week, and several million during major international competitions with its other prediction game Mon Petit Prono (MPP), the company was acquired in 2022 by the Professional Football League and now supports several of the League's digital projects.

**90 Games with monetisable digital objects:  
emerging market, innovation and regulation**

Xavier ASPERGE, Guillaume LABORDERIE  
& Noémie TASHJIAN

A 3-year experimental legislative and regulatory framework for monetisable digital object games (JONUM) is currently being drawn up, to be regulated by the Autorité Nationale des Jeux. This framework will support an emerging market based on blockchain technologies and the development of NFTs, at the frontiers of gambling, sports betting and video games. The technological potential of blockchain is both an asset and a challenge for effective regulation, from the identification of players and their protection against excessive gambling (in a blockchain world initially built on the protection of anonymity), the fight against fraud and money laundering (with the growing use of crypto-assets in this area), access to data and its use for informed regulation, to the legal guarantees offered to players on their NFTs by smart contracts. All of this in a constantly innovating

technological universe and business models that are still in search of their answer. It's an exciting and ambitious challenge that is attracting a lot of attention, with France being the first country to embark on this new path.

**96 Esport strategy 2020-2025: positioning France  
in video game competitions**

Aurélien PALIX & Aurélien REITER

Why launch a national government strategy on electronic sports, more commonly known as esport? First and foremost for economic reasons: this discipline, which encompasses online and offline video game competitions, is expected to represent a global market worth around 12 billion dollars by 2030.

But beyond the economic prospects linked to esport, there are many other aspects to the sector's appeal, whether technological, since esport contributes to the development and promotion of video games, or heritage-related, since the organisation of major esport events attracts large numbers of visitors and helps to promote France as a destination.

Building on France's historically strong presence in the field of esports competitions, which includes hosting major competitions on home soil and renowned French teams, in 2020 the government launched a national strategy to develop the ecosystem, which has led to a number of achievements, the most recent being the alignment of VAT on tickets for esports competitions with that of traditional sports competitions to attract as many spectators as possible.

Since 2020, the strategy has been pursued with actions co-piloted by the Ministry of Sport and the Ministry of the Economy, at a time when international competition in the sector is intensifying. The government's strategy aims to develop a viable ecosystem, with a particular focus on ethics, training, support for players and the country's attractiveness.

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