

For Publication



**President, The Institute of Electronics,
Information and Communication Engineers (IEICE)
KAWAZOE Katsuhiko**

It gives me great pleasure to publish “Technology and Innovation in the Olympic and Paralympic Games Tokyo 2020”.

In the face of the “Coronavirus Disaster”, which no one could have predicted, and against the backdrop of unprecedented and difficult headwinds in the history of the Olympic Games that even the holding of the Games was in jeopardy, the original vision of the Games as “the most innovative Games in history, bringing positive change to the world”, has been transformed from a goal to be achieved to a challenge to be met and without the realization of this vision, the convention would not be a success.

In such an environment, all the engineers have demonstrated their personal best with their advanced project management skills and responsiveness even in an unusual environment and under unexpected conditions. Furthermore, I would like to share with you the trajectories : the trajectory in which researchers from various fields harmonized their best technical capabilities toward a single goal, the trajectory breaking down the barriers between industry, government, and academia, the trajectory of creating and passing on legacy experiences to the children of today, who will be at the centre of creating the next Tokyo Olympics in decades to come. Following the basic concepts of the Games, these trajectories of top-class researchers and engineers who have surprised the world with their innovations for the future are packed into this magazine.

We would like to contribute to the further development of ICT technology in the future by documenting this great success story as an asset, disseminating it globally, and passing it on to future generations.

In closing, I would like to express my appreciation and respect for the efforts of all those involved in the medical field whose efforts cannot be fully conveyed in this journal, and the many researchers and engineers who have supported (and continue to support) them with ICT technology.



**Vice-Director General, The Tokyo Organising
Committee of the Olympic and Paralympic Games
KOMIYA Masaaki**

Due to the coronavirus pandemic, an unusual decision was taken to postpone the Olympic and Paralympic Games Tokyo 2020 for one year, and we needed to concentrate on ensuring that, at the very least, the competitions themselves could be run safely. We regret that we were forced to hold the Games with almost no spectators, and not able to

complete our attempts at innovation projects using digital technology as we had originally envisioned. However, because of the difficulties we faced, we devised unprecedented solutions which contributed to the execution of the Games. I am proud of this.

A rulebook was developed to protect the athletes and stakeholders of the Games from the virus infection. Accordingly, a management system for information sharing was essential to securely implement the rulebook. We also introduced an environment on a trial basis that allows spectators to enjoy a more realistic experience online or virtually participate in the frenzy. We believe that we have used the Games held at the coronavirus pandemic as an opportunity to develop these items which will be utilized in the future.

On the other hand, ensuring cyber security was undoubtedly a mission of a higher priority than ever before, and its realization was also extremely difficult in line with the growing complexity of the Games operations. Looking back on the Games, the keys to success were, for example, how reasonably we could anticipate and estimate possible cyber-attacks, and how flexibly we could prepare risk control measures in the event of “Outbreak”. Among these things, I would like to mention that the repetition of on-the-job training prior to the Games to master the prepared cyber security functions was a major key to the success in fact.

I hope that this special issue will help you in your future social activities as one of the records of having completed the historical event.



**Director-General, Global Strategy Bureau,
Ministry of Internal Affairs and Communications
TAWARA Yasuo**

In September 2021, the Olympic and Paralympic Games Tokyo 2020, which had been postponed by one year due to the spread of the coronavirus disease 2019 (COVID-19), were successfully completed. I would like to express my deep respect for the efforts of the Organising Committee and everyone involved in the Games, which enabled the event to be successfully completed without any major problems.

It is no exaggeration to say that operation of such a large sports-event and associated video distribution to the world would not be possible without the proper use of a variety of wireless systems these days. In particular, since the Games was held in Tokyo, a city with overcrowded spectrum use, there used to be concerns at the outset as to whether the necessary radio frequencies could really be secured.

In cooperation with the Organising Committee and local radio station licensees, MIC had worked to secure the necessary frequencies and to tackle a variety of tasks including spectrum management, inspections of wireless equipment brought in, and spectrum monitoring. This contributed on the success of the Games through an appropriate, and without interference and jamming, use of a variety of radio systems.

Unfortunately, we were not able to welcome many guests from overseas to Japan to watch the Games in person at the venues. Nevertheless, VoiceTra, a multilingual voice translation technology developed primarily by the National Institute of Information and Communications Technology (NICT), was used for smooth communication of necessary information at the competition venues.

The various experiences and technology developments regarding spectrum management, left behind by the Games, will be an asset valuable for the future. Then, it is important to summarize the event and pass the knowledge on to the next generation.

We hope that this special issue will help build a bridge to such future.



**Deputy Director-General,
National center of Incident readiness and
Strategy for Cybersecurity
YOSHIKAWA Tetsushi**

While the Olympic and Paralympic Games Tokyo 2020 (hereinafter referred to as “Tokyo 2020 Games”) were held without spectators, more than 3 billion people around the world watched the Games on TV and online. Accordingly, cyber security was a major issue for the Tokyo 2020 Games. Then, the Organising Committee, the private sectors, and the government worked together to prepare for and respond to this issue.

One of the government’s representative activities was the establishment and operation of the Japan Information Sharing Platform (JISP) to facilitate the prompt and efficient sharing of threat information among the approximately 350 organizations involved. During the Games, we shared information regarding malicious websites promptly and called for full caution. As a result of these efforts, no cyber-attacks that could have affected the operation of the Games were observed.

It is important to link these activities for the future and utilize the findings. It is necessary to share the know-how gained through the Tokyo 2020 Games with other countries who are planning to host the Olympics, etc., as well as to utilize the approach toward the Tokyo 2020 Games for raising the overall level of cyber security preparedness of our country.

The Tokyo 2020 Games was probably the first case of such close collaboration that Japan’s public and private sectors worked together to ensure the cyber security of the event which attracted global attention. We hope that this report will help to widely share the awareness that cyberspace is a public space that should be protected and nurtured by everyone, and to build and spread the cooperative and interactive models of different entities for ensuring cybersecurity.

I hope that this special issue will provide you with hints for strengthening your cyber security measures.

