Public/Private Partnership Award

- Award #1: Private sector/corporations
- Nominees: Acer e-Enabling Service Business Inc.
- Project Name: AEB (Acer e-Enabling Service Business Inc.) and Taiwan i-Sports Information Platform for Taiwan Sports Administration

REASONS FOR NOMINATION

Executive Summary

The Project is a partnership between Taiwan Sports Administration, the governing authority of sports activity in Taiwan, and Acer e-Enabling Service Business Inc. (hereafter AEB), an IT service provider for organizations looking for solutions of digital transformation. The Project set a goal at the inception to “instill health lifestyle to general public to meet the challenges brought upon by ageing society” through the nationwide promotion of sports/health activity and the establishment of well-architect information infrastructure. The joint team of the Project therefore set the following targets for the platform to achieve:

→ Build up a **cloud-based infrastructure** where people everywhere in the country can easily access sports information such as the nearest sports facility and services provided by the facility. For the information to be complete, it needs to integrate heterogeneous systems that were fragmentally managed by officials at different locals. The team believes if sports information is readily available, actual action such as checking into the gym will be more easily followed.

→ Provide **“data”** to people for them to understand their current status of physical fitness, to people when they have developed interests or habits of regular exercise, and to people when they want to know how to get better physically through sports. The data can be acquired by users in the forms of physical fitness test, personal sports resume, personalized exercise prescription, etc.

→ Create an **ecosystem** where those in needs of professional sports advice can find coaches with authenticated certifications, and those in pursuit of a professional coaching career can be properly trained and certified. It is believed that can create a positive dynamic to further develop the local sports industry.
Project Benefits

The Taiwan i-Sports Information Platform was built and started to operate from 2015 until today, and in the process has concluded 5 sub-projects and implemented 15 systems. The Project brings enormous benefits to not only the local sports industry but also the overall society as shown below:

- **Increasing sports participation from the elderly and the general public**
  - Average 1 in 2 persons living in Taiwan has visited the platform for various purposes, accounted for around 12.3 million persons and 600% growth since the Project was initiated in 2015. The active daily users are around 1100 people.
  - More than 2600 sports events are published per year, and the information accuracy rate has increased from 40% to 98%. In addition, tutorial videos of different sports have total views of 780 per day which greatly increases people’s interest to participate in sports online or on the site.
  - Sports event participation rate has increased to around 85%, and the participation rate of events for the elderly also increased 51% in 2021 as compared to 2015.

*2020 was impacted by COVID-19*

Figure 1: Physical Fitness Test
- Note: Performance Report from the Project.
Data Value

→ Around 5.4 million persons participated in the physical fitness test from 2015 to June 2021. The test result not only allows participants to evaluate their fitness and then potentially seek improvement through exercise, but also forms a base for big data analysis that the authority can take advantage of when formulating strategy or making policy.

→ Nearly 7 out of 10 requests for professional help from the platform successfully found their coaches who also have been certified through the system. The matchmaking service offered by the platform creates a positive dynamic for the sports industry where demand is able to meet supply efficiently.

→ 15 papers on various sports topics were published by scholars based on the data provided by the platform. The findings and recommendations from the research are valuable data to sports authorities when formulating strategy and action plans for the market and industry.

Financial impacts

→ Average online payment transaction made through the platform is up to NTD 2.4 million (US$80,000) per year, create positive cash flow for the sporting event industry.

→ Save around NTD 13.4 million (US$450,000) in system development and maintenance fees per year after fragmented services and heterogeneous systems sitting at various locations were integrated into the cloud.

Greener environment

→ 3,966 sports projects or plans looking for government funding were submitted and received grants through the platform, and around 6,069 professionals joined the online examination for certification per year. Time and paper were all saved along the process.

→ Based on official projection, the paper saved per year by the platform can be stacked up to a height 7.2 times that of the Taiwan 101 building (509.2 m or 1,671 ft. high).
AEB (Acer e-Enabling Service Business Inc.) and Taiwan i-Sports Information Platform for Taiwan Sports Administration

Background- The Population Ageing Challenges

According to United Nations (2019), by 2050, 1 in 6 people in the world will be over the age of 65. Taiwan has become an aged society since 2018 with people over 65 years old accounted for 14.6% of the overall population, meaning one out of every seven people in Taiwan is a senior citizen (Taiwan Health Promotion Administration, 2020). The challenges of ageing population come in many different aspects, but the one that stood out is when people get older their fitness capacity will dramatically decline, thus inducing a higher risk of illness, impacting the cost of medical and health insurance.

Many research shows that exercise will benefit body health, especially when having regular physical activities. As stated by Taiwan Centers for Disease Control and Prevention (2021) in a public report that regular physical activities can improve fitness conditions, slow down the ageing process and reduce the risk of incidents such as elderly falling and fracturing bones. Exercise also contributes to fend off diseases such as coronary heart disease, high blood pressure, colon cancer, or diabetes, etc.
The Needs for an IT Solution

With the aforementioned agenda in mind, the Taiwan Sports Administration decides to leverage the island’s well-architect IT infrastructure and build an IT platform to serve the purposes listed in the first section of this proposal. The Administration contacted AEB as the company has been involved in many e-Government projects and is widely recognized by the industry for its technology and experience advantages. The Taiwan Sports Administration teamed up with AEB to outline the high-level requirements as below:

- **Cloud based, Mobile, and future AIoT connection ready**
  - Using cloud technology to integrate heterogenous systems at local city sports centers, schools and other private institutions that have information about sporting events or services, providing one single portal to users for their inquiries.
  - Could be accessed anytime, anywhere, by any end devices, allow people to get needed information at their fingertips.
  - Future-ready for AIoT connection when in the long run most fitness data will be received through intelligent devices or sensors.
Complete and well-structured Data management
→ Data comes in from different systems with different format must be accurately tagged, placed, stored then processed. Allowing government officials, sport center managers, and scholars to access the data real-time for decisions or policymaking.
→ Big Data can be realized with the establishment of individual sporting resumes, physical fitness test records, personalized exercise prescriptions, etc.

Membership, friendly User-Interface
→ Build up membership system not only to collect personal sporting data but also with loyalty program feature that can be leveraged for further promotion.
→ Provide a friendly, single-sign-on interface where users can access different systems and get the information with one member account. For example, users can use their personal accounts to log in not only to look up fitness data but also to find professional help from the matchmaking system.
→ Dashboard for different users to capture the information they needed at a glance.

Security and Compliance
→ Personal data must be protected in accordance with government regulation and advanced security measures such as MFA (Multi-factor Authentication) should be spec-in to ensure the safety of personal data.

The Goal

Taiwan Sports Administration set a long-term vision to build Taiwan as a “Sports Island” where a healthy society can be realized through the establishment of regular exercise habits. The Taiwan i-Sports Information Platform is the building block to realize that vision. The figure below demonstrates those goals the platform aim to achieve, and in a nutshell, it is planned to build a cloud platform that can bridge the information gap between demand and supply, establish personal sports resume and therefore unleash the value of Data, develop a positive dynamic for the sports industry and overall society.
Platform Development

The Taiwan i-Sports Information Platform is a long-term project, starting from 2015, it can be divided into three phases of development. There are 5 sub-projects that were either concluded or ongoing and 15 systems were built for different purposes (see figure 5 below). The platform gives equal sports rights for all age groups and optimizes the sports environment for disadvantaged people like the elderly, disabled, etc.

→ Phase 1: Build a stable, secured and scalable cloud platform that can make sports information easily available.

→ Phase 2: Collect, store and consolidate personal sports data such as individual fitness test results, or business data such as device/ equipment utilization analysis of different local sports centers, to form a solid base for further Big Data application.

→ Phase 3: Build nationwide individual sports resumes and provide exercise prescriptions with customized training programs.
1. **i-Sports Cloud Platform** –

Integrate 22 sports information systems from various local government units into one cloud platform.

Prior to 2015, the local government uses their home-grown systems to provide sports information to the general public. It can be inconvenient as people travel easily from point A to B on the compact island and needs to change systems to get the sports information they want. In addition, the often inaccurate data of sports events and services only worsen the overall situation. The Sports Administration together with the AEB team therefore set a goal for the cloud platform to consolidate and integrate sports data and systems from local cities and make these information available to the public through one portal.
2. **City Sports Map**

   **Improve the UI and UX, making it simple and easy to access.**

   Once the systems were integrated to the cloud, the Project team design the “City Sports Map” as the main interface for users to log in and find the information they want. Customer journey is greatly improved as users can filter sports information and book events or fitness course at different locations through a single visual-friendly web portal. The human effort is also sustainably reduced as for example, webmasters who manage the web no longer need to maintain multiple web pages as the data will synchronize with the i-Sports platform automatically.

3. **Certificate Management**

   **Create trustworthy link between demand and supply sides of sporting services.**

   Certificate management is crucial to ensure a positive dynamic between the demand and supply sides of the sports industry. It not only creates a safe environment for the public to receive professional help and enjoy exercise, but also allow people looking for professional coaching career to receive training, be certified and get jobs. The Platform provides coach development and training information, certificate exam, and service matching opportunities for specific sports such as mountaineering, swim, unpowered parachute activities, etc.
4. **Technology Physical Fitness Test and Analysis System – Free physical fitness test to encourage public to begin the journey of lifetime fitness**

By leveraging Cloud and AIoT technology, the Platform allows people to join free physical fitness tests to understand their basic fitness status. Once become members, they can use the Platform to build personal exercise records and regularly track physical fitness (health) status, or seek professional help from the coaching pool through matchmaking services. Users can upload health-related fitness data through any AIoT devices such as wearables, watches, or equipment embedded with smart sensors. Sports researchers can leverage these data accrued on the Platform to come up with insights and recommendations on the Nation’s sports industry, and Authorities can base on scientific data to form policy or take necessary measures.

5. **Individual Exercise Prescription and Customized Training Program – Based on personal fitness test result, basic training program for improvement can be acquired through the Platform**

The Platform is embedded with AI capability that can provide members different training programs based on their individual physical fitness test results. Members can also look for one-to-one coaching services through the Platform for more advanced personal training once they decide the basic training programs are not enough. In order to provide proper exercise prescription for each individual, about 20 million student physical fitness and exercise data were imported to the Platform to train its AI module.
Figure 7: Physical Fitness Test Report

Note: Sample Result of Physical Fitness Test. Key Fitness data such as BMI, Body Fat Mass, Muscle Strength, Cardiorespiratory Capacity, Body Segment Analysis, etc. paves ways for individual prescription and exercise recommendation.

Key Features of Taiwan i-Sports Information Platform

Key features highlighted below demonstrate the platform’s capability of integrating heterogeneous systems, processing a great volume of data, and being accessible by a variety of terminal devices.

- **Single Sign-On and Dynamic Visual Reporting**

Once the member log on to the Platform, the Single Sign-On feature allows users to access different systems to acquire needed information or call for services. It greatly improve user experience where in the past users have to log on to different systems to get the help they needed. Dashboard feature also allows the business or academic users to view key information they requested at a glance, and customized analysis can be requested from the dynamic reporting system. The graphical interface enabled high visibility to easily understand for example the status of national physical fitness.
Figure 8: Dynamic Report

- Note: The report can filter by exercise time, expenditure, population, city, gender and year.

■ Customized Training Programs recommendation: Based on AIoT and Big Data

Technologies such as AIoT, open data/API protocol, cloud computing were applied by the Platform, allowing users to upload their physical fitness data after daily activity or regular physical fitness tests to the cloud. Mining on these data allows the Platform to recommend customized exercise programs for members with different physical fitness conditions.

Figure 9: Individual Exercise Prescription
Note: Based on the tech physical fitness test report, provide an individual training program.

There are more than 25.4 million physical fitness data in the i-Sports platform database currently. The number is still growing with data coming in each day with the various formats. The Platform is equipped with Big data tool to capture, curate, manage, and process data within a tolerable elapsed time. It is, therefore, able to respond to different users’ various requests in a timely manner regardless it is official asking for public sports data, scholars requesting for general fitness statistics, or elderly checking in to see their fitness training programs.

- Diverse Payment Options
The Platform is built with a payment gateway that supports all the major payment methods in Taiwan. Members can choose to pay online or through offline transfer, making the checkout process easier and convenient. Diverse payment options not only positively impact the financial aspect of the sports industry, but also make it convenient for the elderly who might not familiar with online transactions to pay offline and join sports activities.

- Maximum Compatibility
The Platform is configured to allow for customized connections to achieve maximum compatibility. Using Open Data API, EDI or Data Exchange Center technologies, the platform were able to integrate information from different legacy systems from various government agencies or private organization.

- Secured Access
MFA (Multi-Factor Authentication) such as SMS verification, dynamic one-time passwords, password ageing, etc. are incorporated into the Platform to ensure the highest level of security. Personal data in the system is protected by various IT security measures that conform to government regulations. Professional users such as coaches, scholars, and public officials need to have their credentials authenticated and registered in the system before using services offered by the Platform, which is ISMS (Information Security Management System) compliance.

About AEB

AEB was incorporated in 2012 as a key strategic investment in the IT service sector of the global IT leader Acer Group. AEB provides cloud platforms and digital solutions to enterprises looking to outperform the competition in the era of digital
transformation. The company aims to create and integrate value for stakeholders in the ecosystem of IT vendors and enterprise clients, where AEB has over 2500 long-term corporate accounts and more than 200 first-tier partners in different domains around the world.

Figure 10: AEB aims to create and integrate value in the dynamic eco-system.

Figure 11: AEB provides Cloud/ Digitalization services to first-tier enterprises in Taiwan.
Figure 12: AEB aligns with IT partners to provide world-class solutions to local clients.

With a mission to be the SMART partner of enterprises, AEB has been the top IT service provider in Taiwan over the last decade and is a leading technology partner for the public sector as Taiwan’s Government is proactively pursuing the goal of digital government.

Figure 13: Long-term and proven track records with government agency and SOE.
SUPPORTING INFORMATION

System Screenshots - Taiwan i-Sports Information Platform

Main Page
https://isports.sa.gov.tw/

Sports Activity Page
Activity Register Page

Professional Matchmaking System Page

Find professional helps from the matchmaking system.
Member Center Page

- Certificate Management Page

- Member Center
  - Activities, Courses, Licenses
  - Physical Fitness Testing Records, etc.

- Certificate Management Functions
  - Register, Exam Status, Find Resources, etc.
Press Release

China Times

https://www.chinatimes.com/realtimenews/20210729003302-260410?chdtv
宏碁資訊協助體育署 打造「體育雲-全民運動資訊系統」

隨著今夏運動盛事的開打，台灣也掀起全民運動討論熱潮。民眾期盼疫情降溫後，盡數往日的運動習慣。體育署致力鼓勵民眾以運動生活為目標，規劃「體育雲-全民運動資訊系統Taiwan i-Sports Information Platform」；由宏碁資訊（0811）運用雲端與數據科技導入，結合企業與運動中心、鼓勵民眾參與科技體適能檢測，系統會依據檢測結果，提供客製化運動處方建議，未來更可透過具備AIoT功能的運動裝置，達到推薦與運動數據，逐步建立個人運動履歷。

宏碁資訊長期協助企業或政府單位進行數位轉型，運用專屬平台創造更有成效的資料結構，體育署亦積極佈局數位化政策進行第六年，更致力打造科技運動員。各類「科技運動檢測站」現已推廣至全省運動中心，也廣受好評，鼓勵民眾提早養成運動習慣。

目前體育署已累積近540萬筆的運動檢測檢測數據，同步整合至宏碁資訊為體育署研發建置的「體育雲-全民運動資訊系統」。宏碁也將利用檢測結果，取得專屬訓練計劃，逐步累積自身的運動履歷；政府與學校單位更能透過大數據的分析，作為政策制定與研究參考，數位化的系統亦將簡化使用流程，同時達到節能減碳的目標。

宏碁資訊長期運營的「體育雲-全民運動資訊系統Taiwan i-Sports Information Platform」，各項功能滿足不同體質運動的族群，更整合全省各縣市的體育資訊、運動課程報名等15項功能。一般民眾，可運用簡易的科技體適能檢測中心，測量體能狀況，系統將依據檢測結果提供適合個人的運動建議；而熱愛戶外運動的民眾，也可在此平台尋找專屬運動的場地（登山、溯溪、飛行傘等運動），提高參與運動的興趣與安全性；針對專業人士，提供各種專業運動鑑定系統，由業界專家完成所需的資格。除此之外，業界者也可透過專屬的運動諮詢師，提供資深就業公司接觸更多運動，定期開設員工健檢，創造優質工作環境。
宏碁資訊協助體育署打造「體育雲-全民運動資訊系統」

國民體育日體適能檢測

整合科技體適能檢測 提供民眾專屬運動處方，建立個人運動履歷

根據今夏運動盛事的延展，台灣也掀起全民運動討論熱潮，準备更期盼疫情過後，能恢復往日的運動習慣。體育署著重體適能國人以運動生活為目標，規劃「體育雲-全民運動資訊系統」，整合智慧轉換與數位科技導入，結合企業運動中心，鼓勵民眾參與及體適能檢測，系統會依據檢測結果，提供客製化運動處方建議，未來更可透過具備AIoT功能的運動認證，串連整合各項運動數據，逐漸建立個人運動履歷。

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Reference
3. Taiwan Sports Administration, Ministry of Education (2020). Taiwan i-Sports 2.0. Retrieved from: https://www.sa.gov.tw/Resource/1/1/3/3211/%E9%81%8B%E5%8B%95%E8%87%BA%E7%81%A32.0%E8%A8%88%E7%95%AB.pdf

Appendix
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