

Constructing the Next Generation of Intelligent Learning Environment – The Project of Building Intelligent Campus Network

1. Project Visions:

In order to achieve the vision of "Constructing Intelligent Learning Environment for the Next Generation", the primary and secondary school campus network environment will play a critical role in digital learning in the future. The rise of mobile and IoT devices has made wireless networks indispensable in the future of campus network environment. The convenient and stable network service not only depends on good wireless signal coverage and processing capabilities, but also on the high availability of wired network access points. Therefore, the project aims to upgrade the network-related equipment and fiber-optic backbone to build an intelligent network environment in campus. In addition, the network bandwidth provided for each classroom is upgraded to a reliable wired network access point with Giga-capable bandwidth to support digital learning and mobile learning. In addition, intelligent network management mechanisms will be designed to improve the availability of campus network and reduces the workload of network administrators.

The scopes of the program includes primary and secondary schools with the following objectives:

- (1) To incorporate information technologies into the learning activities in classrooms via wireless network.
- (2) To install network access nodes of high availability for easy network access of computer equipment for digital teaching in classroom.
- (3) To upgrade the backbone of campus network to optical network.
- (4) To deploy gateway equipment with Gb bandwidth to connect to Taiwan Academic Network (TANet).
- (5) To design and build a smart campus network management system.

2. Expected Benefits and Indices:

➤ **Benefits:**

- (1) Enhancing primary and secondary school campus network with high -quality and high-availability fiber optic network to support the transferring of large amount of extensive learning resources into classroom.
- (2) Providing a stable wireless network environment for mobile learning and teaching.
- (3) Building an intelligent and automated networking management mechanism for

county governments.

- (4) Improving campus network to enhance the uses of digital learning resources and services in the educational cloud.
- (5) Enabling teachers to easily use cloud-based teaching tools in classrooms or participate in the community to the co-creation of novel pedagogies.

➤ **Indices**

- (1) To equip all classrooms of the primary and secondary schools (100%) with network of gigabit bandwidth.
- (2) To set up the reference guidelines for campus network construction and let 100% of campus equipped with Gb fiber backbones between school buildings.
- (3) To build a digital learning environment for campus in each county or city (100%) to support basic edge computing.
- (4) To provide stable wireless network with a coverage of 100% in the classrooms.
- (5) To enable the roaming service to 80% of campus wireless network.
- (6) To build an automated system for network quality monitoring to provide 100% of the schools with the services of automated problem detection and active troubleshooting for all network nodes.
- (7) To set up a network management system for big data analysis and transparent network traffic measurement.

3. Project Duration and Budget:

The project is from September 2017 to December 2020 with a total budget of NT\$2.6 billion.