



# Proposed Re-organization Management Information System Department Chiang Kai Shek College

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## Introduction

This 21<sup>st</sup> century, the advancement and usage of information technology products permeate every level of an organization. Information is fast becoming the lifeblood of any organization. Corrupted or lost data cause disruptions in normal organizational activities affecting the organization's effectiveness and efficiency. It is important to recognize that Chiang Kai Shek College can be identified as an educational institution and a business organization as well.

For its dual roles, it is important that the use of Information Technology should be able to support the organization whether it concerns academic affairs or the daily transactions.

Not only has technology made its mark in business processes, it has enabled Education to reach new heights. As a premier provider of quality education to the Filipino-Chinese community, it is important that the College keep abreast with the integration of technology in the organization to enable it to keep up with the demands of times.

It is the intention of this study to review and improve the current Information Technology infrastructure and integration at Chiang Kai Shek College.

## Background

### *Personnel*

The current Information Technology requirement of the school is handled by the Management Information Department. It has a total of 6 personnel, headed by Mr. Reynaldo Nocum as the Director. Mr. Reneson Tan and Mr. Miguel Lim are the senior and junior programmers, respectively. They are tasked to develop computer system applications to aid the business functions of the school. Mr. Ceasar Baylon and Mr. Anderson Tan are the technicians, who are in charge of repairs and maintenance. Mr. Baylon is assigned at the Main Campus while Mr. Tan is the designated computer technician in the Narra Campus. Mr. Earl Yu functions as the IT Support Staff. Presently, the MIS also functions as the school's Electronic Data Processing (EDP) Department. The MIS Department also supports the other departments in report generation and analytics.

### *Network*

The main campus currently has a wired 10-year 100base-T network infrastructure and the main network cabinet is located at the MIS office in the main campus. There are two (2) other network cabinets, located in the High School and Grade School Libraries, that provide the networks entry points to the different departments of the school. These cabinets used to be connected to the MIS main cabinet thru fiber optic cables; however, the fiber optic connection to the Grade School Library has already been severed. This was replaced by more commonly used UTP cables, thereby, restoring connections but such greatly reduced the speed and capacity of the network, particularly to all the computers connected to the Grade School Library. The connection to the High School Library is functioning through a back-up fiber optic line at the moment. Computers in the administration department/s are connected directly to the MIS Department through UTP cables.

Wireless Access Points are installed in the Board of Trustees Office, Accounting Department, Kindergarten Library, one (1) of three (3) Computer Laboratories and Dormitories (3<sup>rd</sup> & 4<sup>th</sup> Floors) to provide Wi-Fi Connectivity. All networked computers are configured with Static IP Addresses by the MIS for control and monitoring purposes. Recently, the MIS migrated one of the computer laboratories from a wired-network to wireless architecture as a pilot project. The internet connection of the school on both campuses is provided by Eastern Telecoms through an 8 Mbps Internet Direct Service (IDS) Line on the Main campus and 2 Mbps Digital Subscriber Line (DSL) on the Narra campus. The two campuses are also interconnected through an Eastern Telecoms provided DLL Line, whose connection / transfer speed is 2Mbps.

The Narra campus also has a 100-BaseT Network with the main network cabinet located at the ground floor. It has an Internet-enabled library and an internet laboratory to serve the student body. It also has three (3) computer laboratories to serve and facilitate the computer requirements of the students. A Wi-Fi hotspot is provided at the school canteen, located in the basement. Through the DLL, the two (2) campuses share the same internet connection.

Internet-connected computers in the main campus pass through a proxy server with Kerio Control (Unlicensed) to monitor its usage and connections while the Narra campus uses a Linux server to manage proxy connections.

### *Hardware, Software, and Security*

All computer hardware is PC based with a mixture of branded and IBM-clone computers distributed in the two (2) campuses. Since the school did not spend much in Information Technology products in the past, majority of the

hardware and software being used for academic and administrative functions are already out-dated with Windows XP as its standard operating system and MS Office XP as its productivity software. Both Windows XP and MS Office XP were replaced by Microsoft with newer versions that provide better functionality.

To provide security and protection, free anti-virus programs were installed on the computers. However, since not all computers are given internet access, updating of virus definitions became a pressing issue.

### *Information Systems*

Currently there are five (5) information systems running to support the business processes of the school. The student registration system, payment system (main campus), and payroll system have already been functional for some years. The recently developed payment system in the Narra campus and ordering/quotation system for the purchasing department are currently in the implementation/testing stage. The three (3) functional systems are due for an upgrade to cope with current limitations.

Numerous utility systems were also developed by the MIS for the different departments of the school like materials inventory, I.D. System, and student monitoring as they go in and out of the campus.

### *Objectives and Rationale*

#### *General Purpose and Objective*

- To identify both critical and non-critical areas where the use of IT applications will be able to enhance efficiency and productivity
- To provide an appropriate IT infrastructure and IT support to the various operations of the College
- To develop systems to update and keep track of data and information that is vital to the College and its operations
- To upgrade existing IT software and hardware platform that will better serve the users of technology in the College
- To provide a faster and more stable technology-enabled environment for the use of the immediate stakeholders of the College

#### *On Academic Operations*

- To take into consideration the usage of technology with the pedagogy and content generation on curriculum development
- To support students' learning activities thus preparing them for life by developing them to be "engaged learners" with the use of technology
- To provide and allocate resources in the development and acquisition of technology-supported learning tools, methodology, and materials thus contributing to the College's learning environment
- To support educators' training of academic-related productivity tools and learning management systems to enhance the teaching and learning process in the classroom

#### *On Administrative Operations*

- To provide timely and relevant data or reports to assist the top level management in decision making
- To ensure that information and reports conform to the legal and accreditation requirements as required of the College
- To provide effective and efficient information system to assist in the daily operations of the College
- To increase efficiency and maximize utilization of IT in order to achieve the goals of the College

#### *Other Purpose*

- To plan for a system integration to provide for distance and e-learning
- To continuously upgrade the IT infrastructure and extend its system integration in the areas of security surveillance, telephony, and other services
- To improve relationships by providing a portal / gateway for communication and information dissemination

### **Scope**

#### *On Academic Affairs*

Based on the stated goals, four (4) key areas were identified for academic affairs where Information Technology can be utilized in improving the services of the College, namely: Students, Teachers, Curriculum, and Environment.

## Students

Students are the main actors of the daily operations of the College. It is through the development of students to be “Engaged Learners” where technology is seen as an enabler.

## Teachers

Teachers are at the forefront of the school connecting with the students. It is important that they are equipped and supported with the technologies available in the 21<sup>st</sup> century to enhance the teaching and learning process.

## Curriculum

Curriculum refers to the subject lessons, plans, and teaching methodology. Enhancement on the delivery of the lessons, teaching style, and subject matters are greatly influenced by the advancement in technology and information products.

## Environment

Environment refers to the physical facilities of the College, allowing for an atmosphere conducive to learning and teaching. In pursuit of having a technologically-advanced campus, such may include but not limited to technology-enabled classrooms and other conveniences like availability of Wi-Fi hotspots, information panels, etc.

Below is a simple illustration on how the information technology structure interrelates with the 4 key areas in academic affairs.

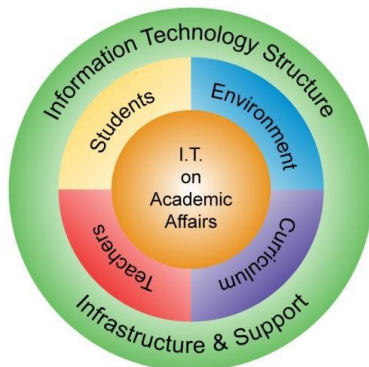


Figure 1. Key Areas in Academic Affairs

## On Administrative Affairs

Four (4) key areas were also identified for administrative affairs where Information Technology can be utilized in improving the services of the College namely, Personnel, Management, Business Process, and Environment.

### **School Personnel**

To maximize productivity and efficiency, it is important to realize that school personnel should be trained to develop the proper skill-set and keep them abreast with the dynamic business and academic environment of the 21<sup>st</sup> century.

### **Business Process**

Effective and efficient business process is a major factor to the success of any organization. It is through technology-enhanced business processes where relevant information can be gathered promptly, accurately, and reliably.

### **Management**

Managers and administrators are responsible for setting goals and providing the strategic direction of the College. As business processes become more reliable and effective, managers and administrators will be able to make better and more accurate decisions for the benefit of the organization.

### **Environment**

The provision and proper utilization of hardware, software, and information resources are deemed necessary in today's fast-paced environment. As tools, these components enable the organization to get the most out of the benefits of information technology resources.

Below is an illustration on the 4 key areas in administrative affairs with the involvement of information technology structure.



*Figure 2. Key Areas in Administrative Affairs*

### **Framework**

Based on the aforementioned scope, a visual representation can be drawn regarding the different layers of technological requirements of the school. The technological infrastructure is the foundation of the whole structure. Hardware,

software, and people ware cannot be added nor benefit from technology if the infrastructure cannot support them.

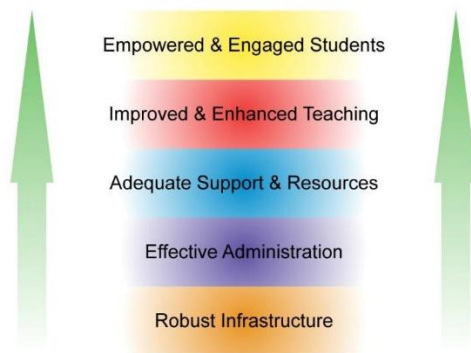


Figure 3. Structural Framework on the Technological Requirements of the School

Based on a vertical approach, infrastructure, resources, support, and outcomes are in-line and supported by each other. Nothing is added more than what is needed and the system is built just large enough to support what the school needs. Starting with the end in mind, stakeholders will see results on the effort being taken by the school and the impact it is having on the educational system.

Focus is placed on students, being empowered and engaged through the various efforts and resources being put up by the school. Teachers are trained as skills are developed and enhanced to meet the demands of education and managing student's learning. Valuable resources are put to good use in support of such endeavors with effective administration and robust infrastructure as its base.

### **Proposed Plan**

The following plan of action is proposed to address the current Information Technology related-conditions of the school. The implementation of these actions will enable the school to cope with the requirements and demands of educational institutions in the 21<sup>st</sup> century.

#### *Improve existing IT Department's structure, functionality, and performance*

To cope with the technological advancement and utilization, it is suggested that the current MIS structure be restructured to address the various issues that it is and will be facing in the years to come.



The department will be renamed from Management Information System (MIS) to Information Technology Services (ITS) Department with the following divisions:

### **Technical Support Team**

The main responsibility of which is to keep all computers (hardware, software) and network functioning as they should be. Personnel assigned should be knowledgeable with hardware, software, networking and trouble-shooting skills. The personnel focus on maintaining the network and computers to run efficiently. The team should be composed of at least three (3) members with two (2) being assigned at the main campus and one (1) assigned at the Narra campus. Network administration will be handled by the team.

### **Educational Technology Support Team**

The main responsibility of the team is to support academic needs and to maintain the computer laboratories and the computer usage in the classroom. Their focus is to ensure the functionality of software installed in classrooms (projectors, smart boards, multimedia computers, etc.) as well as IT related lessons and materials that will be used for teaching. They are also in charge of training the users of technology tools that directly affect classroom instruction and learning. The team should be composed of at least four (4) members, with three (3) being assigned at the main campus and one (1) assigned at the Narra campus.

### **System Development Team**

This team will be in-charge of developing software applications for the college on academic and administrative concerns. Ideally, two (2) to three (3) sub-teams need to be formed to handle the system requirements of the school with each sub-team's composition of a team leader that is a regular employee of the school and two (2) contractual programmers to assist him/her. Their main focus will be the planning, analysis, designing, implementation and operational support of the applications being developed and used by the school.

### **Upgrade existing network**

To cope with the additional requirements for the upgrading of facilities and equipment, a new network needs to be built thereby improving the network infrastructure backbone of the school and future-proof it for the next 10 to 15 years. Currently, the school has a 100base-T network capacity. With the proposed new network, it will increase the capacity by ten folds to 1000base-T.

The current network will also be upgraded and diverted for other matters that will be utilized by the school in terms of security surveillance and telephony. Such can also be used as a back-up network if needed.

## Information System Development

An initial assessment was done on the current information systems being utilized in the school and additional requirements were also considered. Information is the lifeblood of any organization. By order of importance and priority, information systems will either be developed in-house or bought according to the requirements of the school.

### *Formulation of policies regarding Information Technology: Accountability & Transparency*

At present, documentation of policies regarding the use of Information Technology is ambiguous. It is recommended that policies be formulated and implemented in pursuit of exercising accountability and transparency throughout the institution. A review on policies regarding Information Technology usage should also be reviewed. An assessment of current IT-related skill level needs to be reviewed and a training plan should be conducted to improve efficiency and productivity.

### *Review and Upgrade existing academic facilities (hardware & software)*

A review needs to be conducted on the existing IT-related academic facilities of the school. Out-dated units will be upgraded or replaced on a case-to-case basis. The IT plan is learning-centric; thus, priority will be given to facilities that directly affect the students and the faculty for their teaching and learning process. Priority areas will be computer laboratories, library, and faculty rooms.

### *Review and Upgrade existing administrative facilities (hardware & software)*

A review needs to be conducted on the existing IT-related administrative facilities of the school. Out-dated units will be upgraded or replaced on a case-to-case basis. Information panels will be utilized to help in information dissemination. File Servers or Back-up solutions should be installed on critical areas for security and protection.

## Upgrade of CKSC website

Such will be reassigned to the Strategic Planning and Market Communications Department.

### **Development of Intranet**

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Web Portals and Intranet sites improve communications among stakeholders. It saves time and resources when dissemination of information is needed. At home, parents can check the academic performance of their child and other relevant information and statistical data can also be made available. Lessons and assignments can also be made available to facilitate review and progress monitoring. Donors and scholarships can also be made on-line to provide financial assistance to students and prospects. However, before this can be undertaken, current infrastructure and facilities need to be upgraded to accommodate such.

### **Conclusion**

In the 21st Century, schools need to be supported locally by thinking of the current needs of its immediate community but with an inclination of anticipating or preparing for the future. With the proposed plan, the college will have a technological infrastructure that is conducive to learning while allowing students, teachers, and personnel to develop skills and interact with one another.

The IT plan focuses on student learning and continues to ask the questions, “What do students need to learn and what skills do they need to accomplish that learning objective?” Embracing the changes of the 21<sup>st</sup> century the top priorities addressed by the plan are the skills, learning theories, and literacy students need to be successful in this new digital age.

The plan also took into consideration the challenges that the digital age has brought. By creating a digital landscape for our learners, teachers, and personnel alike, they will be allowed proper opportunities to engage in the learning process.

The IT Plan aims to bring people and resources together. Preparing the necessary ground work and adequacies will allow the development of a system where all school stakeholders can log on through a single system and access the information they need whenever and wherever they need it. It also allows stakeholders to communicate more efficiently. By creating a network of users and allowing them to connect to each other, relationships are created with the improvement of efficiency and productivity as its goal.

In the digital age, we must teach our students is to learn, unlearn, and relearn information and technology as it changes; such is also true with the IT plan. As we build it, we evaluate and revise it according to the technological advancement of our time.

No Information Technology plan is easy to implement since technology is a moving target. The plan is fluid and adaptable as it covers the technological concerns of the school in the next three years but a year-to-year plan will need to be embedded to serve as a guide and direction for the school. It strives to meet the current requirements of the college with an eye on tomorrow.

The framework of the IT plan is student-centric with an infrastructure and support model in place to support the different requirements of the institution. The vertical integration allows all pieces of the plan to be adequately supported.

As our world continues to flatten and become more connected, it is our responsibility as educators to prepare our students for that connected future. With the IT plan in place, we allow teachers to teach successfully and allow students to engage in the learning process.

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