Community College of Philadelphia

Information Technology
Strategic Plan
With Progress Annotations

Technology Coordinating Committee
December 8, 2000

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Preface

This document follows a natural progression leading to the establishment of a detailed technology plan. The Introduction presents the College's vision for technology and describes the planning process. The jumping-off point for the technology plan is established in the section titled, "Description of Our Current Environment." The next three sections describe the factors that determine what needs to be included in the College's technology plan. These factors fall into three categories: where the College is trying to go ("Institutional Strategies"), where the technology users wish to go ("What Users Need and Want"), and the gaps in the current technology environment ("Infrastructure Needs"). The final section of the plan lays out the steps that the College has determined to take, based on the goals and motivations that have been established. Each objective in this plan is designed to support at least one (and often many) of the needs that were laid out in the sections leading up to it.

Introduction

Vision Statement

The goal of the Community College of Philadelphia is to provide "Education for a Changing World." Information technology (IT) can and should play a vital role in supporting and enhancing the College's ability to meet this goal. For the purposes of this plan, we are defining ***information technology*** as a set of interrelated components that sense, record, organize, communicate, analyze, display, and disseminate information for the purpose of enhancing perception, understanding, human capabilities and ideas, and creative ability. These components include computing, digital networking, telecommunications, cable television, and other forms of video, audio, and data broadcasting.

The purpose of this plan is to help the Community College of Philadelphia articulate how it will collect, create, access, disseminate, store, and, most importantly, use information to enhance student learning and student services and to describe what changes meeting these goals will necessitate.

The impact of these changes on the College curriculum will be great. Communication and the exchange of ideas between disciplines will be enhanced. Our traditions and procedures as faculty, administrators, classified staff, and students will be challenged. The Community College of Philadelphia will offer technically-advanced opportunities for learning using the best of present and future technologies. The College will be equipped with integrated computing systems allowing both local and remote transmission of College courses, making use, when appropriate, of voice, video, and data transmission among faculty, staff, and students. This approach to higher education will enable the College community to acquire skills and access information and student support services on a scale previously unavailable. As a result, we will not only keep pace with rapid advances of the information age, but also continue to be recognized as a leader among educational institutions. Students will be less limited by time or space as they proceed with their education. Course syllabi, lecture, and research materials will be available on campus or remotely via the Web, as will a number of virtual student support services, such as assessment, counseling, and academic advising.

The Community College of Philadelphia will also utilize the new technology to work more efficiently. Faculty and staff will acquire new skills using training courseware on a local area network and the Internet. They will browse the Internet and the Web to gather the newest and best research from professional journals, magazines, newspapers, or digitally archived video without leaving their offices or homes. Using convenient email or videoconferencing, they will consult with colleagues across the campus or globally. Faculty and staff will distribute information over a College-wide intranet, collaborating easily and quickly to accomplish their goals.

This vision of technology-enhanced learning will not occur easily or inexpensively. We will need to think differently about the role of technology in the learning process. We will need to use technology more effectively as an adjunct to, as well as an alternative for, proven teaching methodologies. Increased technical support will be needed to assist faculty in using this new technology in their instruction.

Effective planning in higher education requires a coherent vision, recognition of the complex interaction required of the constituents, and the need to accept budgetary constraints. Planning for the most productive use of information technology is particularly complex due to the constant evolution of the computer and telecommunications industries, and the influence of technology on communication, research, and education. Planning is an on-going activity, one that touches the concrete and technical as well as the abstract and philosophical. The College requires the incorporation of its needs and vision into a long-term technology plan that is both strategic and operational.

Time span: July 1, 2000 – June 30, 2003 (three years)

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Description of Our Current Environment

Note: The data for "All" and "CCs" come from the Campus Computing Project's 1999 National Survey of Information Technology in American Higher Education (*The 1999 Campus Computing Survey*), conducted by Kenneth C. Green. The number represented in the "All" category is made up of public and private universities, public and private four-year colleges, and public and private two-year colleges, for a total of 530 institutions. The number represented in the "CCs" category is public two-year colleges only, for a total of 131 institutions.

	CCP	All	CCs
Headcount enrollment as of Spring 1999	18,840	7,544	7,152
Number of institution-owned desktop or notebook computers	2,500	2,049	878
Percentage of institutional-owned machines connected to network	95	93.2	90.6
Proportion of **students** who own desktop or notebook computers	40-45[1]	49.7	34.3
Proportion of **faculty** who own desktop or notebook computers	> 50	69.0	61.6
Proportion of **administrators/staff** who own desktop or notebook computers	< 50	63.7	61.6
Number of desktop computer labs, clusters, and classrooms	77	61	79
Number of above dedicated to departments or units	23	20	19
Number of desktop computers/workstations in all labs/classrooms/clusters	1,463	600	546
Ratio of students to public computers	13:1	13:1	13:1
Number of FTE of helpdesk/technical support personnel	12[2]	27	10
Ratio of help desk personnel to student headcount enrollment	1570:1	279:1	715:1
Percentage of faculty with individual/personal WWW page	13	18.4	10.4

[1] This is a compilation of rough estimates given by a number of people. According to a student survey done in 1995, 55% of the students said they had access to computing outside of the College; we can assume the number has grown since then.

[2] Bauer, Ostaszewski, Crosbee, Arcangel, Talabis, Epstein, Jenkins, Mullane, Massenburg, Mathew, Bekas, one vacancy

Percentage of classes that use:			
Computer-based classrooms/labs	25	24.7	29.7
Computer simulations	25-30	17.6	21.0
Presentation handouts	45	41.3	45.4
CD-ROM materials	25-30	15.6	21.1
Electronic mail	50-55	53.4	36.5
Commercial courseware	10-15	13.8	15.7
Interactive data analysis	10	10.0	10.2
Multimedia	25-30	20.6	20.8
Internet resources (from off-campus sources)	10-15	38.6	30.2
WWW pages for class materials and resources	20	27.8	20.6
Total IT budget 1999-2000 (in 000's)	3,368	4,370	1,031
Total academic computing budget 1999-2000 (in 000's)	626	1,892	534
Percentage of total institutional IT expenditures represented by the academic computing budget	18.6	43.3	51.8
Percentage of faculty connected to the campus network/have Internet access from desktop	57.1	93.2	92.4
Percentage of computer classrooms connected to the campus network/have Internet access	100	59.8	59.8
Percentage of classrooms with fixed computer projection capacity	5-10	17.6	16.9

What This Comparison Table Tells Us

In terms of capacity for students to do computing in public areas, the College compares well with similar institutions, with a ratio of 13:1 (this is assuming that all computers are available all the time). The College also compares well in the percentage of classes that use various computer-based tools and resources, in most categories. The two areas in which the College does not compare well with similar institutions are the number of help desk and technical support personnel available and the percentage of faculty who have network and Internet access from their desktops.

Administrative Systems

Administrative and student support systems are mainframe-based through an outsourced mainframe environment. Software for financial systems and human resources systems has been purchased from Systems and Computer Technology (SCT). The College has recently upgraded to the Y2K Plus [i.e., Information Associates] versions of the software. Student systems support is provided by in-house developed on-line systems that provide support for admissions, registration, records, financial aid, advising, counseling and transcripts. An intensive Y2K conversion of these systems has been completed, but the effort needed to complete the Y2K effort diverted staff resources and created a backlog of user requests.

The current systems are programmed, for the most part, in a report-generator language for batch reports (Vision Report from Sterling Software) and a fourth-generation language generator for online

systems (MANTIS from Cincom Systems.) There are a few Cobol and PL1 programs for very large programs, such as registration and financial aid. The financial and human resources systems have been augmented with support systems to provide specialized reporting and additional data manipulation peripheral to the purchased systems; this has allowed the College to upgrade the core purchased systems with new releases in a timely manner. The human resources system was initially modified to handle the various peculiarities specified by the College. This became a major obstacle for the Y2K conversion. The current version has not been modified and will be updated as releases are received.

Networking Infrastructure

The College has devoted an immense amount of resources to create the infrastructure necessary to deliver interactive services via the College network. This has included the wiring of the Main Campus, the Northeast Regional Center, the Northwest Regional Center, the Workforce Development Center, and the West Philadelphia Regional Center. A fiber-optic backbone was installed to connect the buildings on the Main Campus with T1 dedicated telephone lines installed to connect the NERC, NWRC, and WERC to the Main Campus.

The College has contracted with Voicenet to provide Internet service to the College and has installed a T1 connection between the Main Campus and Voicenet to provide this service. We have also contracted with Voicenet to provide dial-in access for faculty and staff for Philadelphia and the surrounding exchanges.

The College Web page has been posted to our Web server and the College intranet has been set up. We have established mainframe access from the network via SAA gateways. Mainframe access from the Internet has been accomplished via a software product, Corridor, residing on a dedicated server. Email has been provided to faculty, staff, and students (by request).

The College has partnered with ACS, IBM, MICAH Technologies, and Bluestone Software to set up the mainframe as a Web server connected to our network. The intended goal of this venture is to make mainframe information readily available to users via the Web. The pilot reports will be financial reports, course offerings, and telephone and email directories.

Hardware

The College's practice has tended to fund new technology in each area separately. Each area has its own budget to support its operational plans; each deals separately with the budget process; and each manages its own information technology resources. Additionally, money in the form of a grant, special program, or other opportunistic funding has been made available sporadically for academic or administrative computing. This process has been primarily driven by the limited resources available and allocated for technology needs. While it has addressed the special needs in some disciplines by providing a limited number of computer labs and classrooms, it does not address the problem of making information technology available to all students in all disciplines.

The College has outsourced the maintenance of desktop and communications equipment to a third-party

vendor. This contract covers equipment once it is no longer under warranty. The College staff handles all warranty activity. We also have a number of specialized maintenance contracts for specialized network and printing equipment.

Microcomputers

The College supports applications on DOS/Windows, Macintosh, and UNIX-based systems. While the majority of desktop systems are Windows 95/98, we still have some Windows 3.1. These applications encompass areas such as computer-assisted instruction, multimedia production, office productivity, Internet applications, desktop publishing, and statistics. Present support levels for these applications are as varied as the applications themselves.

The College currently has software single-user licenses, multiple-user licenses, site licenses, and server licenses. There is limited monitoring and tracking of College-licensed software. Computer software copyright infringement is expressly prohibited by College policy, however, individual departments may purchase and license any software package they choose; in those cases IS support for non-standard software is not provided. The College has made great strides in the standardization and control of computer classroom and computer lab software, but this has not extended to individually controlled systems.

The College has encouraged the purchase of computers for home use through a subsidized loan program; this has been very successful. During fall of 1999 the College distributed 117 computers to full-time faculty, 57 thin-client workstations to counselors and academic advisors, and 32 thin-client workstations to administrative and classified staff. The College has also provided faculty and staff access centers on the Main Campus and regional centers.

Telephone Systems

The telephone system is the College's oldest and most widely used electronic communications resource. The College owns a Northern Telecom Meridian 1 dedicated private-branch exchange (PBX) switch which supports the Main Campus, the Northeast Regional Center, the Workforce Development Center, and the Northwest Regional Center. A Centrex service is used at the West Philadelphia Regional Center. Although the switch has been recently upgraded to handle the new Northwest Regional Center and for Y2K compliance, the telephone resources are not integrated with the network technology used by the College.

Electronic Mail

The College provides Internet and email access for all faculty and staff, although not all faculty and staff have requested accounts (perhaps due to not having convenient access). The following chart indicates the current status of computer access for full time faculty and staff. The dial-in access is a good indicator of off-campus access.

Student email accounts are provided through a Web mail system. Students may request email accounts from forms on the Web or via student access terminals located throughout the campus and regional

centers. There are also provisions for students to have their non-college email address included in the student email directory. To date only 2,861 students have requested email and/or requested that a listing be posted in the directory.

Academic Computing/Instructional Support

The College has the use of a dedicated cable channel that is broadcast citywide to cable subscribers. It is currently used primarily to broadcast our TV course offerings and interspersed message boards to highlight College activities. The Communications Department submits all messages placed on the cable message boards.

The College also has installed a satellite dish capable of downloading programming from satellites. This programming can be sent to the large and small auditoriums.

Instructors who wish to augment their classroom presentation with video use one of several methods. One is a cart equipped with a VCR and TV. Some of the classrooms are equipped with mounted TV/VCR systems. Instructors can also display video by way of computer technology. CD-ROMs loaded onto laptop computers and coupled with LCD projectors can be transported throughout the Main Campus.

The College is currently installing video conference capabilities at the Main Campus, the Northwest Regional Center, and the Northeast Regional Center. This technology will allow faculty to hold a class at one campus and have students at either of the other two centers participate in the course. This technology is also to be used for faculty and staff development, conferencing to peers at other colleges, and course participation with other colleges, businesses, and institutions. Staff development of faculty in the use of this equipment is needed.

The College currently provides multimedia through equipment on moveable carts. There are currently seven carts capable of network connectivity and large screen display with sharp and Nview projectors. A limited number of classrooms are wired to provide connection to the network for Internet access. The distance-education classrooms being set up on the main campus, the Northwest Regional Center, and the Northeast Regional Center will also function in this capacity. The College has satellite download capability but it is not interfaced with the network. We have an enhanced computer room to support multimedia and language classes. This room gives the instructor advanced capabilities of delivering multimedia presentations, video, and monitoring student workstations.

Library

The Library has steadily increased the application of information technology. The provision of remote database searching, active membership in regional, state, national, and international online cataloging and inter-Library loan networks, deployment of off-line CD-ROM databases, and the use of federal electronic information in several formats have been key elements of an expanding resource outreach for the Library. The pervasive use and impact on information retrieval of the Internet and the World Wide Web have positioned the Library at another threshold of resource availability, instructional responsibility,

and collaborative opportunities. Increased use of Web-based programs, however, are constrained by availability of Web-enabled stations in the Library.

As one of the activities in the Title III project, software to automate the Library and associated equipment has been installed. The Innovative Interfaces Inc. (III) system was implemented to automate the catalog database, OPAC, circulation, acquisitions control, and serials control.

Student Computing

The College has insufficient computer labs for student use in course work and research. The Library provides multi-use open student access to the Internet as well as to the OPAC (Online Public Access Catalog). Additional Internet access is provided by the Internet access room within the Student Academic Computing Center (SACC). Support staffing patterns in computer labs are inconsistent, ranging from permanent skilled technicians to student workers to none at all. Student computing and network access demand far outstrips existing capabilities and can be expected to increase.

Many faculty now include instruction in the discipline-appropriate use of information technology. Courses are widely available for students who wish to learn a specific software application. A recent Student Services orientation survey indicated that more than 25% of new day students and more than 50% of new evening students have access to the Internet. There is, however, a need to ensure that all students are given the opportunity to learn to use computers and related electronic information technology effectively.

User Support

Information Systems currently provides user support in the form of receiving deliveries of equipment and software, entering the receipt into the College inventory, affixing inventory tags, setting up and installing equipment and software, connecting to the network, and providing maintenance. A College Help Desk has been implemented to provide support on the software used as well as to record and dispatch staff to remedy equipment and software problems. We have recently purchased a software package that is being installed to provide a tracking/follow up system to monitor the problem reports and build a knowledge base for staff to consult when addressing problems. There is not sufficient staff to handle the support need for current installations; expansion will exacerbate this problem.

Web-Based Technologies and Computer-Based Learning

The College has distributed the responsibility for Web development over existing staff by appointing Web coordinators in the various departments to be responsible for the development of official and unofficial Web pages of the College. Communications has a Web development person to oversee this effort and to design the official Web pages of the College. Information Systems has a person designated as Webmaster to address the technical issues of directories and loading of the Web pages. In addition, there are a number of support Web pages installed by Information Systems as the home page default on student-accessible systems and faculty and staff systems which contain links to College information.

We have linked the Web to the mainframe with Corridor for student access to mainframe services. We

have also purchased Tango to link Web services with Microsoft Access databases to provide dynamic pages for announcements and other operational systems. As mentioned in the mainframe section, the mainframe computer is also set up as a Web server to provide convenient links to mainframe-generated data.

We are in the process of creating procedures for faculty to load Web pages dynamically onto the system. We will require an account and password for access to these pages by students to narrow the copyright issues. We will need to provide open pages for faculty to house information that has an external audience and establish procedures for copyright compliance.

Special-Needs Students

The Center for Disability is equipped with specialized computers and peripherals in order to meet the needs of special students. Additional computer lab hardware and software has been purchased to meet the needs of these students. Progress has also been made in the last two academic years in equipping general purpose labs with hardware and software to meet the needs of special students.

Distance Learning

The College has successfully employed telecourses for over a decade. The College participates in a consortium sponsored by the local PBS channel to distribute and market these courses. In addition, the College has a dedicated cable channel (Channel 53) which covers the Philadelphia viewing area. Telecourses are broadcast over this medium as well. The current philosophy requires students enrolled in telecourses to appear on-campus for orientation and testing during the course. This has brought some criticism as to the distance learning value of these courses.

In addition to the telecourses a few Internet-based courses have also been offered. These courses have been supported with email. The non-standard approach to these courses has required some students to upgrade their ISP services and computers midstream or to withdraw from the courses.

Very few faculty members make use of CAI modules and computer tutorials used in various computer labs throughout the College such as Mediated Learning and Course Technology. Recently, a number of instructors have used email, Web pages, Internet, Encyclopedia Britannica Online and other information technologies, in most cases as an adjunct to their classroom activities. These instructors have all learned these technologies on their own, usually at great expense of time and effort. The College has just started encouraging faculty interest in distance learning modalities, but does not have any formal support (i.e., instructional designers) and incentives (i.e., special compensation) and reassigned time for such activities.

Faculty unfamiliarity with new instructional modalities present barriers to advancement of distance learning at the College. In 1996, Community College of Philadelphia was awarded a grant from the Pew Charitable Trusts to accelerate the use of technology for instruction. This grant served two main purposes:

1. Improving the overall computer literacy skills of the faculty, and

2. Developing and implementing projects that introduce the use of computers into courses and curricula.

Over the first year of the grant, numerous seminars were held to help faculty develop their skills in using the computer both for personal use and for instruction. This resulted in raising the abilities of large numbers of faculty who then began developing software, evaluating commercially available products for inclusion in their curricula, rewriting course lectures for the purpose of incorporating computer-based instructional modules, and developing home pages with links to appropriate educational sites on the Internet.

Over the three years of the grant, 23 grants were completed and the materials are being used in the classroom.

The College is currently installing three interactive video distance learning suites, one on the main campus and one each at the Northeast and Northwest Regional Centers. They will be interconnected with a fractional T1 and will have access to the outside from ISDN lines installed at the main campus. The College is a member of CAPE (A Community for Agile Partners in Education). This is a consortium of colleges and non-profits to exchange information, share training, and seek funding for distance learning.

Institutional Strategies

Institutional Strategy 1: The College needs and wants to accommodate a changing student body.

These data are from the *Annual Statistical Compendium, 1998-99*.

- From 1993-94 to 1998-99, annual credit FTE declined by almost 14%. During the same period, annual non-credit FTE increased by over 94%.

- In 1998-99, the percentage of the student body entering college for the first time was 42.5%, a figure that has been fairly steadily declining since a peak of 59.2% twenty-one years ago

- The number of part-time students began to exceed the number of full-time students in 1981-82, and the gap steadily widened until 1993-94; it has held steady since. The number of part-time students on campus in Spring 1999 was approximately three times the number of full-time students.

- The number of credit students continuing from a prior semester has been declining every year for the past four years.

- All three of the regional centers are experiencing enrollment increases. Enrollment at the Main Campus has been declining for the last five years.

- The largest number of new students in the Fall of 1998, 35.1% on-campus and 37.7% off-campus, consider "preparation for new employment" to be their most important goal.

- Median cumulative GPAs have been declining every semester since Fall 1993. Median semester GPAs stayed steady from Fall 1993 to Spring 1997, but have been declining since then. 12.4% of the students in Spring 1998 had "unfavorable" academic status, with the number who are on probation for poor scholarship having increased by almost 17% since Fall 1993.

- The number of drop-outs has been increasing, from 19.5% of the students in Fall of 1993 to 27.2% of the students in Fall of 1997.

- The percentage of degrees awarded in "College Parallel Programs" of the total number of degrees awarded has increased from 5% in 1988 to 14% in 1998. "Career Programs," "General Studies," and "Certificates" have all declined during the same period.

These changes in the student body put new demands on technology at the College. Students who are focusing on preparation for the workplace will expect to be taught with the latest tools and to learn how to use them effectively themselves. Students appear to have more demands on their time, working while

they attend part-time and shifting to the regional centers to reduce travel. These students will put a premium on efficiency, will value on-line access to administrative services, and will be put off by delays, long lines, and visits to campus for purely administrative tasks. Lower retention, more dropouts, and declining GPAs point to the need for more personalized intervention and closer tracking of students' academic careers. To achieve that with existing staffing levels will require more powerful software tools.

Institutional Strategy 2: The College needs and wants to develop distance learning projects.
The College is actively pursuing the new opportunities provided by distance learning methods. Neighboring institutions are developing new initiatives (Bucks County, Delaware County, Montgomery County), the Pennsylvania Virtual Community College is opening new doors, and the College feels it cannot afford to stand on the sidelines. On the other hand, the College is acutely aware that not all styles of distance learning may work for all institutions. There is an enormous disparity of resources and commitment among the schools that have already entered the arena. So the College will move forward with deliberate speed, developing a handful of courses at first and experimenting with different methods.

The important thing for now is to establish firmly the support systems that will make the College's efforts in this area a success. The College will test various delivery methods for distance learning, including commercial services. The College will draw on expertise both inside and outside of the institution to support instructional design and the development of on-line materials. The College will plan carefully to provide the new kinds of student support that distance learning requires for success.

At the same time that it is developing full-fledged distance learning offerings, the College will be encouraging its faculty to experiment with on-line learning resources within the context of traditional courses.

It is likely that distance learning projects will make use of media channels that are available to the College, such as the channel 53 cable TV station, video teleconferencing, two-way video delivery of instruction, production of original video materials, and the use of existing video and multimedia materials.

Institutional Strategy 3: The College needs and wants to increase retention (enrollment management).
The College is committed to giving its administrators and faculty the tools they need to increase retention. For example, the College will try to increase the ability to spot students who are at risk of dropping out. This would require collecting and retaining as much data as possible about students, including the history of the changes they make in their programs, information that is lost in the current student records system. It would call for maintaining longitudinal data and providing tools for manipulating and analyzing it. Software will be needed that makes it practical to generate personalized communications with students, that initiates human contacts with students such as interviews and phone calls, and that tracks the history of all kinds of contacts with each student. In short, the software system will be expected to assist the College's staff and faculty in maintaining a long-term relationship with the student.

Institutional Strategy 4: The College needs and wants to focus on life-long learning.
The College wishes to view each student's involvement as a whole, over the long run, rather than just focusing on the student's current contact, such as taking a single course. It also hopes that the students will view their involvement in the same way. Students should be able to ask what-if questions about their academic record, to see how courses they have already taken might advance them toward a degree or certificate, even if the courses were taken discontinuously over a period of time. The College wishes to be able to identify students' interests, based on their academic records, so it can bring related offerings to their attention, both credit and non-credit courses.

Institutional Strategy 5: The College needs and wants to assure that all of the technology facilities on the Main Campus and at the Regional Centers are what they need to be to support the educational programs that are offered at each location.
All three of the regional centers are experiencing enrollment increases. Enrollment at the Main Campus has been declining for the last five years. The College has already invested in video conferencing technology to enable cross-site classes to be offered. Increased computing and networking technology has the potential to further bind the Regional Centers even more closely to the faculty and other resources at the main campus. Students at the Regional Centers can be empowered by access to resources like the College library catalog, commercial databases, faculty and course Web sites, on-line administrative services, and email exchanges with faculty, advisers, and other students. While the technology is increasing at the regional centers, the need for support personnel will be increasing as well.

Institutional Strategy 6: The College needs and wants to increase administrative efficiency (for example, reduce paper, do more self-service, promote user independence).
One the College administrator said the College still uses "quill pen" methods to carry out some of its administrative procedures. Many offices and departments anticipate that the right computer tools could help them streamline procedures, eliminate waiting lines and delays, avoid frustrating errors, decrease turnaround times, and even provide services that are impractical now. These changes could do more than just speed up the old ways of doing things; they could actually transform the College's relationship with its students and other constituents by allowing more direct access, self-service, and user independence.

Institutional Strategy 7: The College needs and wants to establish minimum basic skill sets for everyone, job advancement and definitions, and new hiring standards for the future.
The College wishes to make every job on campus forward-looking and dynamic. As technology plays out the inevitable role of change agent, the College plans to work proactively to help each employee acquire the new skills needed. By spelling out what technology skills will be required in each job area, the College will help employees draw up their personal development plans. The College will then provide a number of avenues, both inside and outside, by which employees can develop new technology abilities.

Institutional Strategy 8: The College needs and wants to partner with schools.
The College wishes to play an expanded role in the diverse Philadelphia school system and especially,

to be seen as a viable option for high-school seniors to continue their educations. This role will be aided by technology that reduces the barriers of time and distance, such as teleconferencing and network connections. The College will also be looking to synchronize its technology environment and technology offerings as much as possible with those of the public and private school systems.

Institutional Strategy 9: The College needs and wants to create an image that has the public associate us with technology; we want to be thought of as a technologically forward-thinking institution.

There are two sides to this goal. On the positive side, the College will be striving to establish flagship programs that draw attention to its technological achievements, such as on-line educational offerings. From another perspective, it will be important to remedy any defects that are inconsistent with leadership in technology, especially when they are publicly visible. For instance, arbitrary limits on Web-based registration or a green-screen interface to the College's student system would work against the image the College wishes to achieve.

Institutional Strategy 10: The College needs and wants to create an environment in which all faculty are in a position of making a well informed choice about using technology in their teaching, with barriers removed.

Instructional technology takes a different form in every discipline and fits in a different way into each teaching style. The College wishes to make the most of each faculty member's distinctive approach to teaching. Wherever faculty could amplify a course or a segment of a course through the use of technology, they should find a predictable, reliable, and flexible set of technology tools at their disposal. They should find a student body that has access to the basic tools and skills they will need to take part in the course. The faculty should be surrounded by opportunities to learn what other faculty are doing, both inside and outside the College. Above all, the faculty should feel comfortable in knowing that understanding and sympathetic technical support is at hand to help them once they have made the commitment to rely on technology for any part of the instructional program.

Institutional Strategy 11: The College needs and wants to be more data-driven.

The College wishes to draw upon a rich collection of data to help in planning for and managing the institution. This data might be about students, applications, course enrollments, or financial transactions. The College wishes to foster an environment in which those responsible for managing and guiding the institution have all the tools at their disposal to ask new questions and find new insights.

What Users Need and Want

These are major initiatives only; there are also a number of individual requests within departments and areas, which will be evaluated according to the priority scheme discussed later in this report.

User Requirement #1: Training, Development, Tutoring

The College will provide faculty and staff, full-time and part-time, with opportunities for training and development in IT skills. These opportunities will include:

1. Regular workshops in the College's standard software. At least some of these workshops will be given by qualified trainers, some using a team approach with IT staff, and others by IT staff in addition to their other duties.

2. Workshops in specialized topics for intermediate and advanced students.

3. Professional development plans. All the College employees will be expected to acquire the IT skills they need to perform their jobs effectively. The College will establish general guidelines, outlining the skills that employees in each area are expected to develop. Each supervisor or department head will continually work with each employee in the department to draw up and carry out a plan for ongoing professional development in IT skills.

4. Individualized, one-on-one tutoring will be available, as required by each person's professional development plan.

5. Manuals and written documentation will be provided to end users.

User Requirement #2: Support Services

Besides systematic educational opportunities, the College's users need assistance that is readily available when they are already involved in an IT activity. the College will provide this kind of support through multiple channels:

1. A Help Desk that is available to students, faculty, and staff. The Help Desk will strive to provide immediate resolution of most problems by the person who initially takes the call.

2. The Help Desk will have access to specialized support people who can handle more difficult issues.

3. The College will establish clear points of access for support, so that users will know unambiguously where to go for help. Users will not find themselves being referred from one support point to another.

User Requirement #3: Personal Access to Personal Computers

As faculty and staff integrate computing into their teaching and administrative activities, they need ready

access to a personal computer in their regular work space. The pods of shared faculty computers have helped people get started, but the very success of this method assures that it will ultimately need to be superseded by 1:1 access. Faculty need access to email, the Internet, personal productivity tools like word processing, and the tools for developing enhancements for their classes. They need access to these resources in the same place that they meet with students, prepare class, and perform other academic and professional duties, that is, in their own offices. In order to ensure that every person has truly useful tools, the College will establish minimum levels of computer power, peripherals, software, and network access for each group of the College employees, such as faculty, administrators, support staff, etc. These baseline levels will be regularly reexamined.

User Requirement #4: Administrative Systems: Integration

The efficiency of College operations will be greatly enhanced when all the core administrative operations are integrated. Double entry of data will be avoided. Changes and updates to common data made by one office will be effective for all other offices, keeping data consistent. An office will be able to consult data maintained by another office by direct inquiry into the system, rather than by having to ask the other office for a report. Who can access different parts of the College's data will be determined by deliberate policy decisions, rather than being restricted by where the data is stored.

There is also a value to integration that goes beyond efficiency. Higher education automation systems had their origin in the era of "data processing." The early systems were focused on carrying out specific processes, such as creating payroll checks or printing grade reports. Typically, each office just cared about the specific information it needed to do its job. As institutions have begun to recognize the strategic value of this information, it has become more important to be able to relate different types of data together, across the entire organization. An integrated system makes it easier to get the big picture.

User Requirement #5: Administrative Systems: Self-Sufficiency in Report Writing

Users are now totally dependent on IT personnel for "special requests," that is, report writing, ad hoc queries, and data downloads. This dependency limits the usefulness of the data that is already contained in the system. It also creates a backlog of tasks that take up a large proportion of the IT staff's time. There will always be need for some assistance from specially skilled staff to do more demanding manipulation of the data. Not every user will become expert in performing their own queries and reports, as was shown by the failure of the introduction of Focus. However, direct access to data by at least some users will greatly benefit the operations of the College. The College will take the following steps to make this happen:

1. Migrate to a more modern and accessible information system.

2. Provide users with easy-to-use query and reporting tools.

3. Provide views and extracts of key data that simplify the reporting process.

4. Provide users with the means to download subsets of data to their desktops, where they can use

more familiar desktop software to analyze and format it.

5. Provide training and support for users who wish to increase their skills in manipulating system data.

User Requirement #6: Student and Faculty Self-Service, Web-based

Services should be provided in a way that is cost-effective for the College and efficient for those the College serves. Therefore, the College will provide as many administrative and academic services as practical to students and faculty though web-based, self-service programs. Such direct-access services do not replace human aid-givers, rather they enhance them, freeing up people to focus on services that are not routine or mundane. Considerable frustration and inconvenience can be eliminated for students and faculty if they don't have to stand in line or attempt to speak to the right person on the telephone. Citizens are getting more accustomed to enjoying this kind of direct access in the rest of their lives outside the College, such as banking transactions and on-line purchases. The College will enhance its direct-access services, particularly in these areas:

1. *Prospective students:* acquiring information about College admissions procedures, programs, and courses; requesting publications and forms; finding out about credit for courses taken elsewhere; applying online for admission and financial aid.

2. *Students:* planning an academic program, including "what-if" questions; degree audit; on-line registration, adds, and drops; access to academic schedule; notification of changes in course time and location; payment of tuition and fees, including the use of credit cards; review of a student's own financial account; review of financial aid and loan status; preparation for graduation; making appointments for advising, testing, and other services; etc.

3. *Faculty, department chairs, and academic advisers*: up-to-the-minute course rosters; access to information needed to advise students; management of course offerings and course enrollments; secure online entry of final grades; access to personal teaching schedule; etc.

Infrastructure Needs

Infrastructure Need #1: Help Desk
[See previous section, Support Services, item 1]

Infrastructure Need #2: Software Development Environment
The current student records systems were developed in-house and are programmed, for the most part, in a report-generator language for batch reports (Vision Report from Sterling Software) and a fourth-generation language generator for online systems (MANTIS from Cincom Systems.)

GOAL: Migrate to a software development environment that is established more widely in the marketplace OR Migrate to a vendor-supported software package (see next item).

Infrastructure Need #3: Migration Path for Administrative Systems
Supporting complex systems that were developed in-house, such as the College's student records system, demands much staff effort. The continual need to add new features and to implement mandatory regulatory changes adds even more to the support load. At the same time, the administrative community has become accustomed to a high level of customization-on-demand. Other issues with the current applications are: they were not designed from the ground up as integrated, relational systems; they are built on text interfaces that make using them harder to learn and use and give them an out-dated look; and they do not have a native connection to the Internet and Web access.

The applications that the College has used since the late 1980's for financial records and human resources are commercial packages. However, the company that developed them (Information Associates) has long since been acquired by one of its competitors (SCT). SCT's announced plans for the IA programs are somewhat vague, but almost certainly involve their eventual replacement by a radically different product that will unify SCT's offerings. the College almost inevitably faces an expensive and difficult transition at some point in the future.

GOAL 1: Investigate commercially-available software packages for higher education, to see if a package can be identified that provides the functions that the College needs, provides a high level of service to the College's constituents, embodies best practices in higher education administration, integrates the core functions of the College, provides flexibility for adapting the operation of the software without programming modifications, and relieves the College of the burden of continual software development.

GOAL 2: If a product is identified that satisfies the criteria in the previous item, acquire and migrate to the new system.

Infrastructure Need #4: Dealing with the "Thin Client" Strategy
The introduction of "thin client" technology at the College has been accompanied by glitches and has left

users discouraged and frustrated.

GOAL: Put sufficient funding and technical expertise into the implementation of the thin client strategy so that users have unimpeded access to the computing power they need OR Replace the thin client workstations with full-powered PC workstations.

Infrastructure Need #5: Training and Development of Technical Staff
The College recognizes that the professional skills of its technical staff will be one of the most important determiners of the success of the College's technology plan.

GOAL 1: Identify the current technical support needs of units and individuals within the College. Inventory the skills that will be required to carry out the goals of the technology plan. Match these up with existing technical and personal skills among the technical staff and develop an overall technology skills development plan to fill the gaps.

GOAL 2: Develop individual professional development plans for each member of the technology staff. Provide resources to help the technology staff carry out these plans. Monitor progress toward the goals that are set.

Infrastructure Need #6: Extend the Network: Offices and Classrooms
The College has made major strides in networking the campus. However, communication tools like networking (and the telephone before it) only take on their full value when they are universally available. Faculty, students, and staff must be able to rely on network access being uniformly available throughout the campus if the network is to become a central part of how they do their work.

GOAL 1: Extend local network and Internet access to every office and classroom on the campus.

GOAL 2: Provide full network connectivity between the main campus and the regional centers, creating a single virtual super-campus.

GOAL 3: Provide local network and Internet access to every office and classroom at the regional centers.

GOAL 4: Provide access to all campus computer services and facilities from off campus, through College-provided dial-up lines and via the public Internet.

Infrastructure Need #7: Network Reliability and Capacity
As the network becomes more and more essential to instruction, collaboration, and delivering administrative services, it must become unquestionably reliable. Also, a plan must be in place to keep its capacity one step ahead of growing demand, which will be driven up by success itself.

GOAL 1: Complete an inventory of network vulnerability, including physical security, power backup,

intrusion protection, data backup, monitoring software and procedures, etc. Rectify any weaknesses that are identified.

GOAL 2: Establish resources and staffing to allow monitoring and technical support for the network at all times, even when the physical campus is not open. Set service levels for network up-time and the time required to solve problems.

GOAL 3: Draw up a plan that identifies expandability at all levels of the network (cabling, hubs, switches, servers, etc.), showing what investment will be required to expand the capacity of each element as it becomes saturated.

GOAL 4: Set aside contingency funding for expansion of network capacity as it is needed, without having to go through yearly budgeting cycles.

Infrastructure Need #8: Technology-Enhanced Classrooms
The College wishes to take advantage of the creativity and teaching skills of its faculty by providing classrooms that encourage a wide range of technology tools to be used to enhance teaching.

GOAL 1: Equip the classrooms so that they are workable for computer-enhanced teaching, with a minimum of a network connection and facilities for projecting a computer screen.

GOAL 2: Provide technical staff to support faculty in using the enhanced classrooms (software setup for individual classes, equipment setup, crisis support, installation of standard software and peripherals on lab computers, etc.)

Infrastructure Need #9: Project Management/Planning
GOAL: Develop strong project management and planning abilities in the technical area. This will be essential for the complex, long-term projects presented in the Technology Plan. Project management will also involve letting users know when they can expect responses to their requests, what deliverables they can expect, etc.

Infrastructure Need #10: Optical Scanning Capability
GOAL: Work the glitches out of the current optical scanning system and integrate it more closely with the administrative software systems.

Infrastructure Need #11: Web Access to Administrative Data
[See previous section: **Student and Faculty Self-Service, Web-based]**

Infrastructure Need #12: Public Lab Facilities, Including the Regional Centers
The Regional Centers continue to grow in importance and enrollment.

GOAL 1: Expand the number and size of student computer lab facilities, including those in the Regional

Centers.

GOAL 2: Establish standards for software and hardware in the public labs that are sufficiently broad to meet the teaching needs of the faculty.

GOAL 3: Continue to enhance the quantity and quality of support services in the public labs. Provide sufficient technical support and replacement hardware to keep the labs running at all times and without equipment being taken out of service. Provide training for lab assistants so that they can assist students with instructional assignments.

Infrastructure Need #13: Desktop hardware and software replacement cycle
GOAL: Establish and publish a multi-year replacement cycle for hardware and software that is specific enough so that individual users will know when they can expect their next upgrade. Unpredictability is demoralizing and disruptive.

Infrastructure Need #14: Desktop hardware and software consistency within offices/areas
GOAL: Create a useful working environment by upgrading hardware and software within each office or department to substantially the same level.

The Plan, Year By Year

Summary of Institutional Strategies, User Requirements, and Infrastructure Needs
Institutional Strategy 1: The College needs and wants to accommodate a changing student body.

Institutional Strategy 2: The College needs and wants to develop distance education projects.

Institutional Strategy 3: The College needs and wants to increase retention (enrollment management).

Institutional Strategy 4: The College needs and wants to focus on life-long learning.

Institutional Strategy 5: The College needs and wants to assure that all of the technology facilities on the Main Campus and at the Regional Centers are what they need to be to support the educational programs that are offered at each location.

Institutional Strategy 6: The College needs and wants to increase administrative efficiency (for example, reduce paper, do more self-service, promote user independence).

Institutional Strategy 7: The College needs and wants to establish minimum basic skill sets for everyone, job advancement and definitions, and new hiring standards for the future.

Institutional Strategy 8: The College needs and wants to expand partnership opportunities with public schools.

Institutional Strategy 9: The College needs and wants to create an image that has the public associate us with technology; we want to be thought of as a technologically forward-thinking institution.

Institutional Strategy 10: The College needs and wants to create an environment in which all faculty are in a position of making a well informed choice about using technology in their teaching, with barriers removed.

Institutional Strategy 11: The College needs and wants to be more data-driven.

User Requirement #1: Training, Development, Tutoring

User Requirement #2: Support Services

User Requirement #3: Personal Access to Personal Computers

User Requirement #4: Administrative Systems: Integration

User Requirement #5: Administrative Systems: Self-Sufficiency in Report Writing

User Requirement #6: Student and Faculty Self-Service, Web-based

Infrastructure Need #1: Help Desk

Infrastructure Need #2: Software Development Environment

Infrastructure Need #3: Migration Path for Administrative Systems

Infrastructure Need #4: Dealing with the "Thin Client" Strategy

Infrastructure Need #5: Training and Development of Technical Staff

Infrastructure Need #6: Extend the Network: Offices and Classrooms

Infrastructure Need #7: Network Reliability and Capacity

Infrastructure Need #8: Technology-Enhanced Classrooms

Infrastructure Need #9: Project Management/Planning

Infrastructure Need #10: Optical Scanning Capability

Infrastructure Need #11: Web Access to Administrative Data

Infrastructure Need #12: Public Lab Facilities, Including the Regional Centers

Infrastructure Need #13: Desktop hardware and software replacement cycle

Infrastructure Need #14: Desktop hardware and software consistency within offices/areas

Major Planning Initiatives

Initiative #1
Develop a specific number of new distance-education courses.
Supports: IS#2, IS#7, IS#8, IS#9

Discussion
Distance education encompasses a wide variety of formats and methodologies, including telecourses, videotape, teleconferencing, CD-ROM, and Internet/Web. The College has already offered some distance education courses, but sees the next three years as an opportunity to make distance education available to a larger group of students.

Related issues include support services for students taking distance education courses, including access to library materials; support and training for faculty; and course ownership.

Year 1
1-1. Planning: The Technology Coordinating Committee, working closely with an ad hoc Distance Education Committee, will produce a report that will accomplish the following:

1. Define the target audience for distance education courses. Determine the make-up of the potential student body, their locations, how many of them are there, how many of them are current students, etc.
2. Create a master list of courses/programs/departments that we offer now that have been identified by the divisions as good candidates for distance education.
3. Suggest courses that are new for us that would be appropriate for a distance education model.
4. Identify the support services that faculty need in order to participate in designing distance education courses. Identify the support services that faculty need in order to teach distance education courses.
5. Determine how to provide the infrastructure and support resources that are needed to appropriately conduct these distance learning courses, including computing and networking facilities, technical support, user support, library support, academic advising, marketing, administrative processes such as registration, drop and add, and billing. Identify the services that students need in order to become successful distance-education learners.
6. Identify evaluation methodologies for distance education courses.

1-2. Develop and offer at least five new Web-based courses. The new courses will be considered pilot projects and a report will be distributed to all faculty and interested others about what was learned from these experiences. As pilot projects, each of these courses will be designed to test the feasibility of one of the different models of Web-based instruction (no attendance on campus, some attendance on campus, etc.) Each of these courses will use the Internet as its main delivery vehicle, although some courses may include a few face-to-face activities on campus. At least one of the new pilot courses will be totally Internet-based and will fully explore the delivery of education to the student who is not

expected to come to campus. One of the goals of the College's distance education initiatives is to reach students in underserved areas far from the College's campuses and regional centers. At the same time, we also see significant development in the areas of teleconferencing, telecourses, etc. as tools for delivering distance education.

1-3. The Technology Coordinating Committee, working closely with an ad hoc Distance Education Committee and other appropriate bodies, will establish necessary policies to govern the introduction of new technologies into the curriculum. These policies will include new courses as well as existing courses that are being adapted for this purpose.

1-4. The College will partner with others to help it reach its goals in distance education. For instance, the College will participate in the Pennsylvania Virtual Community College Consortium.

11/29/00 – The issues associated with posting of faculty web pages has been explored. A modification to the College's Acceptable Use Policy for Interactive Systems has been identified and is being passed through the College approval processes. A two-level arrangement for secured and unsecured web pages will be established with links from a College Faculty by Department Directory. Information for registered students will be accessible from the secured area that will require an account and password for access. Information that is for public access will be in an unsecured area and faculty compliance with the Acceptable Use Policy for Interactive Systems will govern the content. Links to the secured pages will appear on the unsecured pages that will be the initial access paths.

The College has appointed Mark Saks as Acting Director of Distance Education with the responsibility of providing assistance to faculty, developing a web site and providing guidance for establishing standards and practices.

Academic Computing has added the position of Instructional Technology Design Specialist to assist departments, programs, disciplines, and individual faculty in the development of web pages to support existing and distance learning courses.

An ad hoc Distance Education Committee has been established. Membership consists of Mark Saks, Arnold DiBlasi, Mary Ann Yannuzzi, Jody Bauer, Kerri Armstrong, Carolyn Birden and Kathy Smith.

Distance Courses are currently classified under four types. Different disciplines may require more or less personal contact. Here are the classifications:

> ***Telecourse (T): The course is delivered primarily by broadcast video. There are usually a small number of scheduled on-campus meetings (typically about 5).***
> ***Tele-web (TW): The course is delivered primarily by broadcast video. However, contact with the instructor and assignments are managed through the Internet. Internet access is required. There are usually a small number of scheduled on-campus meetings (typically about 5).***

Online (O): These courses are delivered primarily online. The course material is frequently a textbook, supplemented by materials delivered via the Internet. There may be a small number of on-campus meetings.
Campus-web (CW): These courses are classroom intensive, meeting as often as once per week in some intensive cases. There may be field trips required as well. Assignments and supplemental materials are delivered via the Internet.

Initial College entries into the Distance Education arena will use the Web Study software provided by the WHYY consortium. An Anthropology course is expected to be available for the Spring 2001 term. Courses in Biology, Justice, Health Information Technology, English (Creative Writing), Paralegal Studies, Architecture, Behavioral Health/Human Service, and Computer Aided Design will be available starting in Summer 2001. A distance education web site has been developed.

The College is an active participant in the Pennsylvania Virtual Community College and has listed all currently offered TV and internet-based courses on the Pa Virtual Community College web page. http://www.pavcc.org/

The WHYY consortium continues to advertise and broadcast the College's TV and Internet-based courses. The Acting Director of Distance Education in order to remain current with new developments attends the regular monthly consortium meetings. http://www.whyy.org/homecollege/html/on-line.html

Year 2
1-5. Select one or more software packages or services for providing distance education. Do a needs analysis for a distance education environment and use that as the basis of a Request For Proposal to be sent to distance learning vendors. Involve faculty in the decision process. Choose a new system based on responses to the RFP, campus software demos, site visits, client references, and other information gathering.

1-6. Continue the activities of Year 1, with specifics to be determined by the planning process.

Year 3
1-7. Continue the activities of Year 1 and 2, with specifics to be determined by the planning process.

Initiative #2
Talk to SCT about migration possibilities
Supports: IN#3

Acquire a new Student Information System

Supports: IS#1, IS#3, IS#4, IS#6, IS#7, IS#9, IS#11, UR#4, UR#5, UR#6, IN#2, IN#11

Create an administrative computing project designed to reduce paper. Possible candidates: online requisitioning/purchase orders; transcript requests; registration
Supports: IS#6, UR#5, UR#6, IN#10, IN#11, IN#14

Acquire a tool for end-user report writing
Supports: UR#5

Discussion

The suite of administrative systems currently running at the College is not of the latest generation of software and functionality. The finance and human resources systems, both from SCT and both the latest in their product lines (IA Plus), are being considered by SCT for migration to a new set of systems called Relationship Leveraging Systems (RLS). RLS will represent not just new underlying technology and architecture (faster, less labor-intensive, less expensive to maintain, less risk of obsolescence), but also greater functionality for end-users. The RLS systems are being designed to be the primary tool for colleges and universities to manage their relationships with all constituencies, especially their students. The College will ask SCT for a confidential briefing on the future of their products, based on signing a non-disclosure agreement.

The student system was developed at the College, and of all of the current systems, represents the greatest opportunity to move to an environment in which the system is a critical resource in treating each student in an individual way, but also in a way that is fast and efficient. Modern student systems are designed to be controlled by end users to a very great extent and to accommodate a wide array of differences in students, programs, costs, schedules, and approaches.

Integration between the student system and the finance and human resources systems is important as well. Acquiring all of the products from a single vendor in an integrated suite is the best approach. In addition, there are issues of training, reengineering, and hardware readiness to consider.

Year 1

2-1. Meet with SCT to find out more about the migration to RLS and consider whether this will be a viable option for the College for the finance and human resource systems. If it is, the timing would most likely make it beyond the scope of this plan. (This step does not indicate a preference for staying with SCT, but is a prudent step for the College to take in evaluating its current situation and future options.)

10/01/00 – Met with SCT to determine the viability of the RLS System. At this point SCT has revised its implementation schedule and has removed projected release dates from the RLS System. They have made a commitment to continue the Banner System into the future with the expectation that the Plus Systems Users would migrate to Banner or wait for the release of RLS.

2-2. Do a needs analysis for a new information system, concentrating on the student area, and use that as the basis of a Request For Proposal to be sent to administrative system software vendors. Choose a new system based on responses to the RFP, campus software demos, site visits, client references, and other information gathering. Take into account SCT's migration path in determining the best fit for the College. Criteria for the final selection will be:

- ?? Functionality
- ?? End-user tools for reporting, querying, and self-service; Web access
- ?? Workflow and integration
- ?? Support and training
- ?? Underlying technology
- ?? Cost
- ?? Financial viability and stability of the vendor
- ?? Cultural fit with the College

12/08/00 – Information sessions have taken place for DATATEL (October 24, 2000), SCT's Banner System (October 31, 2000), and PeopleSoft (December 5, 2000). Oracle is scheduled for December 19, 2000. In all cases a preliminary session was held with Information Systems staff to update the vendors on the College's current systems and the expected outcomes of the information sessions. Follow-up budgeting sessions have been scheduled with IS and Budgeting staff to get information on implementation costs and possible timetables. The DATATEL session took place November 17, 2000; SCT is took place November 30, 2000. Peoplesoft is scheduled for December 20, 2000. Oracle will be scheduled after the information sessions.

2-3. Develop a full implementation plan for the new student system that includes user education and training as well as opportunities for reengineering certain student-related processes.

2-4. Acquire a reporting tool for end users to use on current data that can be migrated to the new systems.

11/29/00 – A number of projects aimed at paper work reduction have been initiated. The monthly financial reports are now available via the intranet with full security provided through a mainframe web server. The 2001-2002 capital and operating budget processes have been redesigned to utilize the web with interaction to an access database using Tango. Purchasing of supplies through Alpha Office Supplies is being moved to moved to a web-based ordering format.

<u>Year 2</u>

2-5. Implement the new student system. Prepare for implementations for the finance and human resource systems.

Year 3
2-6. Begin implementations for the finance and human resource systems.

Initiative #3
Make sure that students have appropriate access to computing facilities regardless of whether they are on the Main Campus or at the Regional Centers.
Supports: IS#5, IS#9, IN#12

Discussion
Our overall goal is to have all of the facilities on the Main Campus and at the Regional Centers be what they need to be to support the educational programs that are offered at each location. However, we also recognize that computing hardware and software is a fundamental necessity, and we want to maintain the same standards and achieve an appropriate ratio at each location.

Our College-wide ratio of students to public computers is approximately 12:1, which is consistent with, and a bit ahead of, other community colleges. In addition, the ratio at each location, including the Main Campus as well as all of the Regional Centers, is at least 13:1. Our goal is to continue to emphasize providing access for students to modern, capable equipment and to maintain a ratio at each location that is at least consistent with other community colleges. In addition, we will strive to increase accessibility to students by opening up existing facilities that are dedicated to certain purposes and locked at other times.

Year 1
3-1. No action needed.

11/29/00 – We constantly monitor the computer access for students. The Student Academic Computer Center (SACC) monitors use of the open lab and the Internet access on the main campus and regional centers. Expansion of the SACC requires a major commitment of space that is in short supply at the main campus. The facility planning process to relocate the Workforce Development Center when the lease expires in 2002 will incorporate space for expansion of SACC and added computer classrooms to serve the main campus population.

The Fall 2000 access statistics are:

Total College Credit:	***12:1***
Main Campus:	***13.5:1***
Northeast Regional Center:	***11.5:1***
Northwest Regional Center:	***8.4:1***
West Philadelphia RC:	***7:1***

These figures are based on end of third week enrollments.

Year 2
3-2. Enrollments at each location will be monitored, as well as the needs of specific academic programs. Hardware and software available to students will be increased or replaced as necessary.

Year 3
3-3. Enrollments at each location will be monitored, as well as the needs of specific academic programs. Hardware and software available to students will be increased or replaced as necessary.

Initiative #4
Hire/acquire trainers and create a College-wide training program for faculty and staff.
Supports: IS#7, IS#10, UR#1, UR#5, IN#5, IN#9

Discussion
We will set up a comprehensive, College-wide technology training program for faculty and staff that is user-oriented, responsive to specific needs, tailored to teaching and office schedules, and done by people who are skilled in instructional techniques. We also recognize that training is sometimes difficult to fit into one's schedule and that other activities may often take precedence over attending training sessions. Therefore, we are making attendance at two half-day workshops during a one-year period a strong recommendation and we are pursuing other channels to see about making it a requirement. Staff in administrative offices will be given release time to attend the workshops. (At the option of the instructor, an individual may be released from the requirement after demonstrating competency in the topics to be covered.)

Year 1
4-1. The half-day workshops will be held many times over the course of the year so that everyone's schedule can be accommodated. A sample program might be:

Workshop 1 (half-day):
General computer concepts
Electronic mail
Calendaring

Workshop 2 (half-day):
Word processing
Internet access

4-2. Academic departments are in the process of developing technology plans in conduction with the Academic Computing Coordinator. Each of these plans includes a training component. For this as well

as other needs of the academic community, an additional full-time faculty member is being hired in the Academic Computing department.

4-3. The staff in the Information Systems department require a specialized training plan, tailored both to the specific requirements of each of their positions and to their backgrounds and experience levels. It will be up to the Vice President of IS to design these individualized plans.

12/07/00 – While a College-wide training program has yet to be instituted, there have been on-going training events addressed to increasing the technical competence of the Information Systems staff and the faculty and staff College-wide. They are:

Information Systems Staff Training:

Help Desk Staff - Exceptional Customer Service Skills
Academic Technical Staff – Microsoft Windows 2000 and Office 2000 training

Institutional Advancement:

OneOnOne Computer Training – available in MG-23 for individualized training in Microsoft Windows, Word and Powerpoint

Microsoft Word – Counseling Department
Microsoft Excel – Division of Liberal Studies
Ask the Help Desk – November 3 and December 1
Professional Development Week, August 2000
– Information Systems conducted two sessions on accessing the Internet and using the mainframe
Professional Development Week, January 2001 –
- Academic Computing is conducting a technology symposium
- Information Systems is repeating the sessions on accessing the Internet and using the mainframe.
Professional Development Day, February 19, 2001
– The theme for the day's program is technology

Year 2

4-4. In addition to continuing the half-day workshops, each academic department and administrative office may request one full day (or a number of sessions adding up to one full day) every six months for area-specific training. This will be done by a combination of a professional outside instructor and a user services staff member from the IS department and will be arranged in advance by appointment.

For more specific training, such as for certain software packages including spreadsheets, database management systems, and presentation software, a combination of computer-based and videotape-based training will be available for individual access from the IS department.

4-5. Training in the new administrative system will be part of the project implementation of the new system, and will include all users of the system.

Year 3
4-6. Continue workshops and training in new administrative system.

Initiative #5
Create a 1:1 ratio of people to computers for faculty and staff.
Supports: IS#9, IS#10, UR#3, UR#6, IN#4, IN#13

Discussion
A necessary condition of genuine competency with information technology is convenient access. For the past few years the College has funded access to computing power for those who could demonstrate that they were most in need of it. This program has helped computers to proliferate, but at the same time, the institution's expectations for the members of its community have changed (for example, everyone is now expected to use e-mail). A lack of personal computers, especially among the faculty, still inhibits access to both tools and information such as e-mail, communication with students and with colleagues, access to administrative data, special interest bulletin boards, specialized databases, and curriculum-based software. Institutional funding for personal computers for all members of the community is the best way to empower each individual to be as productive as possible. This initiative will also create an environment in which it is clear that information access and technology tools are valued and expected to be used, regardless of one's job, field of interest, or endeavor.

Deployment of computers to faculty and staff will follow the guidelines in Appendix A, "User Levels and Hardware/Software Minimum Levels."

We recognize that because of Community College of Philadelphia's physical facilities, mission, and history, we have evolved into a campus full of mobile people. The campus is more nomadic than residential, even for the faculty who teach there full time. Fixed, private space is at a premium, with several faculty often shared an overflowing office. This has technological implications. It will not be easy to find room in offices for a computer for each faculty member. More equipment will strain the electric power wiring and put more demand on the environmental systems. The College will have to use creativity to overcome these difficulties. Providing the option of using notebook computers is one way to address this reality. It also addresses the growing desire for computing that is available any time, anywhere. We must also address the fact that much faculty work is done at home. By providing better network connections for faculty and students when they are off-campus, we can tie the home workspace more seamlessly with life on campus.

Year 1

5-1. Deploy desktop and notebook computers to full-time faculty to reach a 1:1 ratio (possibly leased).

11/29/00 – The College has chosen to address this in steps. The first step is to provide a computer for each faculty office. We are using the deployment of computers pulled from classrooms in a Thin Client mode or under Windows 95 to accomplish this. Of the 356 faculty offices located on the Spring Garden Street site 179 have had computers deployed. Another 50 will be deployed by the end of January 2001. We expect to have all faculty offices covered by the end of June 2001. We are addressing the network infrastructure to facilitate individual logons from these or any computer stations giving the faculty the effect of personalized computers. The College's computer loan benefit and the dial-in access will continue to encourage home access.

A recent survey of computers in administrator and support staff offices confirmed that those requiring computers for the most part had them. Any upgrades or expansion will be handled through the College's normal capital budget process. Information systems will provide the guidance as to which systems and software will need to be upgraded. This will also tie-in to the scheduled replacement of mainframe terminals to provide access to any new administrative information systems.

Year 2

5-2. Deploy desktop and notebook computers to staff to reach a 1:1 ratio as appropriate (possibly leased).

5-3. Plan how to provide appropriate computing to part-time faculty, setting reasonable expectations.

Year 3

5-4. Deploy desktop and notebook computers to part-time faculty to reach a 1:1 ratio of computers to full-time positions. (possibly leased).

Initiative #6

Add additional user support staff

Supports: UR#2, IN#1

Discussion

It has become apparent throughout all industries, including higher education, that supporting the use of technology is as important as providing the technology itself. A Help Desk staffed with knowledgeable and friendly staff is a requirement in order for the College to be able to move forward in a reasonable way. Appropriate salaries must be offered to attract and retain staff with the required qualifications.

Since hiring new staff at attractive salaries may cause an imbalance with existing staff, this may be an opportune time to review the salary structure in the entire Information Systems department. A revised salary scale might also take into account technical certifications such as MCP, A+, or CNE.

The goal is to have 60% of all calls to the Help Desk answered during the first pass, 30% answered within 24 hours, and 10% answered within 72 hours.

Year 1

6-1. Hire two additional Help Desk staff in IS.

6-2. Conduct a salary review of all staff in IS with a possibility of reformulating the salary structure.

11/29/00 – IS has recast the Manager of Customer Support position into a Manager of Technical Support to oversee the technicians who install and maintain computer equipment and software. The extended warranties on desktop equipment and the reduction of mainframe communications equipment has allowed IS to bring the previously outsourced maintenance contract in-house under a time and materials basis. The savings were diverted to hiring two additional technicians, one (started November 1, 2000) to expand the equipment and software installation and maintenance staff, and another (currently advertised) to assist the Webmaster with the technical functions of maintaining a web site.

Initiative #7
Develop more "smart" classrooms
Supports: IS#1, IS#5, IS#9, IN#8

Discussion

There are a number of levels of smart classrooms that would be appropriate at the College in the near future.

A Level 1 Classroom may be equipped with:

?? A moveable cart
?? A computer with a DVD player and a network connection
?? A VCR
?? A projector (RGB & Video)
?? A screen in large lecture areas or an interactive whiteboard in classrooms
?? A network hook-up

A Level 2 Classroom may be equipped with:

?? A permanent Teaching Station, with controls for all classroom devices including lighting

?? A television, projected through the projector
?? Stereo audio amplifier with wireless microphone

A Level 3 classroom may be equipped with:
?? Everything in a Level 2 classroom
?? Workstations at each student seat
?? Network connections at each student seat

The Coordinator of Academic Technical Support will provide a set of specifications for the software and configuration of computers used in the classrooms at all three levels.

Year 1
7-1. All classrooms at the College, including the Regional Centers, will become at least Level 1 classrooms.

7-2. We will create 2 Level 2 classrooms.

11/29/00 – The College has purchased wireless technology to provide coverage for the Bonnell Building. Portions of this system can be relocated if requirements arise in other buildings. Academic Computing is pulling together specifications for the level 1 and level 2 stations. A determination will be made as to what will be needed during the 2000 – 2001 capital budget cycle.

Year 2
7-3. We will create 5 additional Level 2 classrooms.

7-4. We will create 2 Level 3 classrooms.

Year 3
7-5. We will create 5 additional Level 2 classrooms.

7-6. We will create 2 additional Level 3 classrooms.

Initiative #8
Provide video production and transmission capabilities to support distance education, multimedia classroom presentations and College marketing
Supports: IS#2, IS#8, IS#9

Discussion

In order to reach a wide audience, both for instruction and for marketing purposes, the College needs access to video and multimedia production capabilities and the ability to uplink video materials to satellite communication channels to broaden our scope of delivery. This capability will enhance the College's marketing efforts, capabilities to partner with other institutions and to deliver courses to multiple locations simultaneously.

Year 1
8-1. Acquire satellite uplink capability.

8-2. Develop and/or acquire through outsourcing multimedia and video production capability, both on-site and through partnerships.

Initiative #9
Extend the network to all classrooms and offices and make it 100% reliable
Supports: Everything

Discussion
Networking has quickly moved into the category of "utility" services and it is reasonable today to expect that the campus network will reach everywhere that other utilities do, such as electricity. To be able to communicate easily and efficiently and to be able to send and access information regardless of location are no longer optional for any educational organization; they are requirements.

The minimum configuration will include a network outlet in every classroom and office on both the Main Campus and the Regional Centers, capable of at least 10MB transmission.

Year 1
9-1. Extend the network to include every classroom and office on the Main Campus. Faculty and administrative staff will be able to rely on having a working network connection at their desk with reliable access to the Internet, local servers, network printers, and email. Instructors will be able to bring a computer to any classroom without advance arrangements and connect it readily to the Internet. The necessary network bandwidth will be provided as demand steadily increases.

9-2. Explore the possibility of wireless transmission for certain locations.

9-3. Examine networking needs for purposes other than data, such as HVAC, security, and other monitoring capabilities.

11/29/00 – Wireless technology has been purchased to deliver network services to classrooms and other open areas in the Bonnell Building. Evaluation of the wireless technology will

determine if expansion to all other areas of the main campus is desirable. Information Systems is conducting an evaluation of the current network infrastructure to determine what enhancements are required to provide the level of service specified in the Technology Plan. A key component is to deliver an individual logon at each station so that faculty who share computers in offices and access centers perceive the computer as personalized to their needs. The complaints received on the thin client systems will also be examined to determine if they are network problems or user training problems. In either case remedies will be proposed.

Year 2
9-4. Extend the network to include every space at all locations, including study lounges, laboratories, etc.

Initiative #10
Put in place regular funding for lifecycle replacement of desktop hardware and software
Supports: Everything

Discussion
In order for the College's technology efforts to thrive, they must be based on a regular funding stream, and not rely solely on fluctuating, opportunistic sources like one-time grants. It is especially important to take into account that hardware needs to be replaced on a regular cycle and to build that replacement into the budget. The cost of setting up and installing the new equipment will be included in the budget for this initiative.

Year 1
10-1. Fund a three-year life-cycle for desktop hardware and software replacement. In the first year, replace all equipment older than three years.

11/29/00 – A concentrated effort is being expended to update the inventory files to get accurate statistics of the age of the computers in use. At first pass approximately one-third of the 2700+ computers used in classrooms, labs, and offices have been purchased prior to 1997 and are less than a Pentium 133 level. First priority for replacement will be computer classrooms, labs, and access centers. This involves approximately 400 computers and with a replacement cost of $1,350 will require funding of $540,000. The College Director of Budgets is exploring the possibilities of leasing to provide scheduled replacement for hardware and software. Parallel with the hardware evaluations, a software survey will be conducted using a purchased software package to determine software installed on all College systems. This will be compared to a purchased software inventory to determine the budget requirements to ensure license compliance. An upgrade schedule with associated budget requirements will also be developed. The costs associated with redeployment of computers from classrooms to

faculty and staff will be significant. Also there will need to be clearly defined procedures to determine which faculty will need systems comparable to classroom systems.

Year 2
10-2. Fund the second year in the desktop hardware and software replacement cycle.

Year 3
10-3. Fund the third year in the desktop hardware and software replacement cycle.

Initiative #11
Use a structured priority mechanism that allows the College to evaluate all other initiatives beyond what is in this plan
Supports: Everything

Discussion
We recognize that, in addition to the elements in this plan, there are initiatives that individual offices, departments, or areas are interested in pursuing. Also, we recognize that new initiatives will come up that we had not anticipated when formulating this plan. In order to accommodate these additional elements, we will use a priority mechanism that will be based on the Committee's consideration of the following points:

- ?? Degree of the project's support of, and alignment with, the College's goals and objectives
- ?? Impact on the quality of teaching and learning at the College
- ?? Necessity of the project with respect to the needs and expectations of the College community
- ?? Breadth of the project impact across the College
- ?? Justification in financial terms
- ?? Feasibility of the project from a technological and a logistical standpoint

11/29/00 – This will be a topic addressed by the Technology Coordinating Committee. A meeting will be set up to update the committee members of progress to-date on the technology plan and to begin the deliberations on an agenda for the committee.

	Objective	Timing (months)	Responsible person(s)	Cost
Year 1				
1-1	Planning for distance ed	3	TCC, chaired by Samuel Hirsch	No Cost
1-2	Develop 5 Web courses	12	Director, Distance Education & Distance Education Committee	Release Time
1-3	Develop policies for distance ed	1	TCC	No Cost
1-4	Partner with Pennsylvania Virtual Community College Consortium, et al.	12	Director, Distance Education & Dean, Educational Support Services and other College representatives	Pending analysis
2-1	Find out future of SCT administrative software	1	V.P. for Information Systems and Telecommunications	No Cost
2-1	Needs analysis for new administrative system	9	Administrative Information System Selection Committee, chaired by Project Manager of AIS Selection	Pending analysis
2-3	Develop implementation plan for new Student system	3	Administrative Information System Selection Committee, chaired by Project Manager of AIS Selection	Pending analysis
2-4	Acquire reporting tool for end users to use with current information system	3	V.P. for Information Systems and Telecommunications 12 user copies @ $259 = $3108 1 Full developer product = $2485	$76,182
3-1	Maintain minimum ratio of 13:1 public computers at Main Campus and Regional Centers - Expand SACC – Need space	4	V.P. for Information Systems and Telecommunications	Pending Analysis
4-1	Half-day workshops for faculty and staff	12	V.P. for Information Systems and Telecommunications V.P. for Institutional Advancement Grants	$150 per workshop
4-2	Hire an additional full-time faculty member in the Academic Computing department	1	Academic Computing Coordinator	$66,500
4-3	Information Systems staff training	12	V.P. for Information Systems and Telecommunications	$20,000 per year

	Objective	Timing (months)	Responsible person(s)	Cost
5-1	Deploy computers to full-time faculty to reach 1:1 ratio	6	V.P. for Information Systems and Telecommunications	$352,500* or lease
6-1	Hire 2 additional help desk staff	3	V.P. for Information Systems and Telecommunications	$125,100 including Benefits
6-2	Conduct a salary review of all staff in IS with a possibility of reformulating the salary structure	3	V.P. for Information Systems and Telecommunications	No Cost
7-1	Make all classrooms Level 1	12	V.P. for Information Systems and Telecommunications	$41,250
7-2	Create 2 Level 2 classrooms	6	V.P. for Information Systems and Telecommunications	$30,000
8-1	Acquire satellite uplink capability	3	V.P. for Information Systems and Telecommunications	$20,000
8-2	Develop or outsource for multimedia and video production capability	6	Director, Distance Education	$20,000
9-1	Extend the network to every office on the Main Campus	6	V.P. for Information Systems and Telecommunications	$35,000
9-2	Explore wireless	2	V.P. for Information Systems and Telecommunications	No Cost
9-3	Examine HVAC and security networking needs in each building	6	V.P. for Information Systems and Telecommunications	No Cost
10-1	Fund a three-year life-cycle for hardware replacement	3	V.P. for Finance and Planning, with the assistance of V.P. for Information Systems and Telecommunications, and TCC, chaired by Samuel Hirsch	$1.7 mil plus install*

	Objective	Timing (months)	Responsible person(s)	Cost
Year 2				
1-5	Select distance education software	4	Director, Distance Education and distance education faculty	$50,000 7,500 annual
1-6	Continue Year 1 distance education activities	12	Director, Distance Education & Distance Education Committee	
2-5	Implement the new student system Prepare for implementation of finance and human resource systems	12	Administrative Information System Implementation Committee, chaired by Project Manager of AIS Implementation	$1.5 mil
3-2	Maintain minimum ratio of 13:1 public computers at Main Campus and Regional Ctrs – Expand SACC	2	V.P. for Information Systems and Telecommunications	Pending Analysis
4-3	Half-day workshops for fac. & staff & area-specific training for depts.	12	V.P. for Information Systems and Telecommunications V.P. for Institutional Advancement	No Cost
4-4	Training in new administrative system and continue workshops	12	V.P. for Information Systems and Telecommunications	$25,000
5-2	Deploy computers to staff to reach 1:1 ratio	6	V.P. for Information Systems and Telecommunications	$84,000
5-3	Plan how to provide appropriate computer access to part-time faculty	6	TCC	No Cost
7-3	Create 5 additional Level 2 classrooms	6	V.P. for Information Systems and Telecommunications	$75,000
7-4	Create 2 Level 3 classrooms	6	V.P. for Information Systems and Telecommunications	$217,200
9-4	Extend the network to include every space at all locations, including study lounges, laboratories, etc.	12	V.P. for Information Systems and Telecommunications	Complete Wireless Project
10-2	Fund the second year in the desktop hardware and software replacement	3	V.P. for Finance and Planning, with the assistance of V.P. for Information Systems and Telecommunications, and TCC, chaired	$424,500*

	Objective	Timing (months)	Responsible person(s)	Cost
	cycle.		by Samuel Hirsch	

	Objective	Timing (months)	Responsible person(s)	Cost
Year 3				
1-7	Continue Year 1 & 2 distance education activities	12	Director, Distance Education & Distance Education Committee	
2-6	Begin implementation of finance and human resource systems.	12	Administrative Information System Implementation Committee, chaired by Project Manager of AIS Implementation	$2.0 mil
3-3	Maintain minimum ratio of 13:1 public computers at Main Campus and Regional Centers – Add'l SACC	2	V.P. for Information Systems and Telecommunications	Pending analysis
4-6	Continue workshops and training in administrative system	12	V.P. for Information Systems and Telecommunications	
5-4	Deploy computers to part-time faculty to reach 1:1 ratio of computers to full-time positions	6	V.P. for Information Systems and Telecommunications	Pending Analysis
7-5	Create 5 additional Level 2 classrooms	6	V.P. for Information Systems and Telecommunications	$75,000
7-6	Create 2 additional Level 3 classrooms	6	V.P. for Information Systems and Telecommunications	$217,200
10-3	Fund the third year in the desktop hardware and software replacement cycle.	3	V.P. for Finance and Planning, with the assistance of V.P. for Information Systems and Telecommunications, and TCC, chaired by Samuel Hirsch	$747,000*

* The estimated costs to lease computers with a two year replacement factor for desktops and laptops and three year replacement for servers based on an inventory goal of 3200 computers leased in increments of 800 per year over four years would have the following budget requirements: Year 1 - $384,426; Year 2 - $768,846; Year3 - $1,153,266; and Year 4 and subsequent years - $1,537,686

Appendix A: User Levels and Hardware/Software Minimum Levels

Assumptions: All machines will have the following software available for the user: currently supported Windows operating system; current McAfee anti-virus engine and signature files; Novell NetWare client; a 32-bit web browser with Adobe Acrobat, Shockwave, Flash, Authorware player, and RealPlayer plug-ins. Other specialty software may be requested with written justification. Some users may receive ThinClient machines as appropriate based on required software applications regardless of User Level. ***Note: The following chart was developed during the Spring 2000 term and is presented here to depict the four levels of computing at the College, actual configurations will need to be updated with current technology.***

User Level	User Tasks	Software requirements	minimum hardware requirements
1 ***Basic***	Email Word processing Spreadsheet WWW access	Word97 Excel97 Netscape	ThinClient desktop PC running applications listed under "Software Requirements" 3 ½" Floppy drive 14" VGA monitor **--OR--** 486/66 MHz 32 MB RAM 720 MB HDD 3 ½" Floppy drive 2x CD-ROM 14" VGA monitor Based on written justification.
2 ***Basic with Main Frame access***	Email Word processing Spreadsheet WWW access Mainframe access	Word97 Excel97 Netscape Mainframe emulation software	
3 ***Intermediate***	Email Word processing Spreadsheet Electronic Presentations WWW access Web page authoring File Transfer Protocol (FTP) Mainframe access	Word97 Excel97 PowerPoint97 Netscape Mainframe emulation software FTP package	Pentium processor 32 MB RAM 2 GB HDD 3 ½ " FDD 4x CD-ROM 3COM 10/100 NIC 16-bit sound card External speakers 15" SVGA monitor
4	Email Word processing	Word97 Excel97	Pentium II processor 64 MB RAM

Power	Spreadsheet Database development Electronic Presentations WWW access Web page authoring File Transfer Protocol (FTP) Mainframe access Multimedia Authoring Digital Image Processing	Access97 PowerPoint97 Netscape Mainframe emulation software FTP package Specialty software, by request	6 GB HDD 3 ½ " FDD 4x CD-ROM 3COM 10/100 NIC 16-bit sound card External speakers Iomega ZIP drive 17" SVGA monitor