CLAREMONT MCKENNA COLLEGE
INFORMATION TECHNOLOGY
2002 STRATEGIC PLAN TRACKING REPORT

Prepared by
Chief Technology Officer
Dr. Cynthia A. Humes
On behalf of
Information Technology Services
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I. Background and Introduction

Strategic planning is a process that seeks to clarify what an organization is, what it wants to be and how, specifically, the organization can successfully make the transition. A strategic plan provides directions and a management strategy within the context of changing internal and external environments. An Information Technology Strategic Plan sets the philosophy and direction for the use of information technology within the enterprise. This strategy must consider the industry that the enterprise is in, the competition, the directions of technology, and the role of the information technology organization in the enterprise.

Executive Staff members of the Information Technology Services Department or ITS have drafted an Information Technology Services Strategic Plan to accomplish those goals identified by the Claremont McKenna College with attendant implications.

The planning approach that we followed included these steps:

• Review of the "Claremont McKenna College Strategic Plan: A Vision for 2002–2012 (March 15, 2002).
• Review of "A STRATEGIC PLAN FOR INFORMATION TECHNOLOGY AT CLAREMONT McKENNA COLLEGE," submitted by the ad hoc IT Strategic Planning Committee, February 3, 2001. (See Appendix for the Charge to that sub-committee.)
• Consideration of new circumstances since creation of the College's 2002 Strategic Plan and the 2001 Information Technology Strategic Plan.
• Development of a mission statement for Information Technology Services (ITS) at CMC that clearly describes the role of ITS in implementation of the Information Technology Strategic Plan.
• Development of a vision for the use of information technology within the College.
• Development of planning assumptions that detail the environment in which the College currently exists.
• Development of key value statements or guiding principles that should govern the decisions and actions of the organization and are aligned with the CMC vision, mission and goals.
• Development of goals and attendant initiatives that have already been undertaken in response to the College's 2002 Strategic Plan and the 2001 Information Technology Strategic Plan up to June 2009.
• In a future document to be constructed over AY 2009-10, we will develop expected goals and attendant initiatives to be undertaken over the next five years to enable the organization to move forward toward its desired "future state" in accordance with the guiding principles. This document will be aligned with the Claremont McKenna College Board of Trustees 2009-10 Strategic Planning Framework.

The ITS Information Technology Strategic Plan is meant to reflect the vision, planning assumptions, key directions, goals and strategies for the use of all information technology throughout the College. As such, its adoption has implications for many academic and

administrative departments within the College, and not just for Information Technology Services. Accordingly, our draft document updating our prior plans will be presented for consideration to the Committee on Academic Computing, representing our faculty and students, and the Administrative Computing Committee, representing our administrative departments within the College.

Since the terms involved in strategic planning are often used differently by different people, the following is a clarification of how strategic planning terms are used within the ITS Information Technology Strategic Plan.

- Information Technology Services Mission Statement – The role of ITS within the institution; the commonly held beliefs about what the Department should do to support implementation of the information technology strategic plan.
- Information Technology Vision – The desired "future state" for the use of information technology across the institution.
- Information Technology Guiding Principles – Key value statements that should govern the decisions and actions of the organization with regard to acquisition and use of information technology throughout the College.
- Information Technology Goals – Long-term, major targets or end results related to the survival, value and growth of the institution and reflecting specific College recommendations.
- Information Technology Initiatives – The particular actions or means that will make it possible to achieve the goals.

II. Information Technology Mission and Vision for CMC

We envision a "future state" when the use of information technology permeates the entire institution providing for collaborative teaching, learning, research, and business functions. It is a time when students, faculty and staff have universal access to information and services using information technology regardless of time of day or location. This desired future state includes a faculty that is well trained in the use of information technology tools that they apply to their individual pedagogical approaches to improve teaching and learning in their classrooms. It also includes an administration and staff who use information technology to operate the institution more effectively and efficiently. It is a time when information technology supports our alumni, parents, trustees, external community and friends of the College effectively. With this future state scenario in mind, the Vision for the use of Information Technology at CMC is that "***Claremont McKenna College makes creative and strategic use of information technology, eliminating the constraints of time, space and other barriers, to empower its students, faculty and staff to succeed in instruction, learning, research, community service and administrative efficiency and effectiveness***."

This vision underscores ITS's role to help support CMC's ambition to remain one of the top liberal arts colleges in the nation. This plan is grounded in our view that ***"The Mission of Information Technology Services of CMC is to provide technology support and vision to further our collective mission to a) educate students, b) support scholarship, c) increase visibility to our community, and d) facilitate the business of the College effectively and collaboratively with our constituents."***

III. Current Conditions and Planning Assumptions

The ITS Executive Staff developed a list of assumptions about demand for information systems, networking, and client support. These assumptions reflect what we perceive to be our constituents' expectations and expected needs and we have also taken into consideration assumptions regarding the capital campaign and plans for growth. We organize these lists of assumptions according to our perceived environment and constituents and we then turn to information technology and department-specific assumptions.

Our Environment and Constituents

CMC Organizational Culture

1. CMC has worked hard to create a student-centered, customer-service orientation within its organizational culture and this effort will continue into the future.
2. The CMC organizational culture is positive and characterized by loyalty to the College and its mission.
3. The CMC culture is increasingly becoming entrepreneurial, innovative, and team-oriented with expectations of sustainability and environmental awareness.
4. The CMC culture will continue to approach challenges as opportunities rather than as constraints, demonstrating a "can do" attitude that has been impacted recently by changing financial situations in the United States.
5. More than ever before, CMC Pride is a focal point for change and CMC's image in the community is one of quality.
6. CMC has a commitment to improving the use of information technology throughout the College.
7. CMC has an organizational culture that is familiar with and supports planning.
8. CMC is placing an increasing emphasis on greater consortial involvement, which is now one of the major strategic goals of the College.
9. CMC emphasizes benchmarking processes to set the stage for continuous improvement activities, and the College will increasingly extend its use of benchmarking to include areas of information technology use and technology support.
10. CMC is constantly challenging and re-challenging itself to become more productive and efficient.
11. At CMC, using technology to do our business has become a way of life.
12. The College community has an expectation that information technology resources are limitless.

Students

1. The majority of students and prospective students have web access, are comfortable with the use of technology, and expect quality technology resources while in residence.

2. Prospective students and their parents may select an institution based on the quality of the web presence of the College, sometimes making decisions to reject institutions in mere seconds.
3. Students expect to be able to access the web anytime, anywhere, and find what they want easily when they want it.
4. There is increasing expectation that students will use the web for educational purposes.
5. Student populations may differ in their needs, and although familiar with computer usage and surfing the web, technology fluency cannot be assumed of our students, necessitating excellent training and support in the residence halls, classrooms, and labs.
6. There is increasing expectation that information technology includes dynamic interactivity and that increasing types of services can be accomplished electronically.
7. Students use their CMC e-mail account, but often retain pre-CMC e-mail accounts prior to enrollment.
8. Resident students expect to be able to use network resources for entertainment.
9. The student body will experience growth in the near and longer term.

Faculty and Staff

1. Faculty and staff need ongoing and continuous professional development in the use of information technology to enable them to effectively do their jobs.
2. There is great variation of faculty and staff having access to information technology tools from department to department within the College; some staff may not have appropriate access to technology to do their jobs effectively and efficiently, while others may have access but are less technologically adept and even averse to using technology.
3. Faculty and staff have access to more data than they have the training or time to use.
4. There are increasing expectations that faculty and staff will use information technology to enhance pedagogy and instructional/institutional effectiveness.
5. CMC must foster adoption and use of technology and manage resistance to change.
6. As we become more accustomed to working with technology, the resistance to change is reduced.
7. Faculty and staff need to be recognized for their attempts and successes in making the transition from the traditional ways of operating to new ways using technology to enable student success.
8. The web has the potential to enhance communication among campus constituents.
9. Demand for information and turning to the web as a point of delivery for College services will continue to increase.
10. Learning opportunities inside and outside of the classroom via the web will increase.
11. The web is a major marketing tool for CMC faculty and staff.
12. ITS partners with Public Affairs and Development to craft an identity for the web, and once that web image is determined, ITS must facilitate the consistency of this web image by working with all major constituents on implementation.
13. Faculty and staff will increase in proportion to the student population.
14. There are faculty and staff within the College who wish to become and remain proficient, and be supported on their use of bleeding edge technology applications.
15. Faculty and staff need to be aware of how technology is impacting student expectations and learning styles and be more visionary in their daily decision-making and use of technology.

16. Our emphasis on the use of technology should not replace an emphasis on good teaching.
17. Use of technology varies widely by academic focus and requires careful partnership and support.

Research Institutes

1. Research demand for information and turning to the web as a point of delivery for supporting the teacher scholar will continue to increase.
2. Research opportunities via information technologies will increase.
3. The web is a major marketing tool for Research Institutes.
4. ITS partners with Public Affairs and Development to craft an identity for each Research Institute on the web, and once that web image is determined, ITS must facilitate the consistency of this web image by working with all major Institute constituents on implementation
5. Research Institutes will have special Information Technology needs that will require careful partnership and support.

Trustees

1. Trustees increasingly rely on the web for information and services.
2. Trustees expect to communicate and network with the campus and each other online through quality, secure web-based services.
3. Trustees will have growing expectations of conducting their College business through information resources they are accustomed to use in their business operations.
4. There is great variation of trustees having access to information technology tools, and others may have access, but are less technologically adept and even resist adopting technological means of doing trustee business, which will need to be managed.

Parents

1. The majority of parents of prospective students have web access.
2. Demand for basic information and orientation as well as turning to the CMC web as a point of delivery for College services will continue to increase among parents.
3. Expectations to learn about involvement opportunities at the College via the web will increase.
4. Parent support of CMC has grown significantly over the past decade and has had a significant impact on the College, and the web has the potential to enhance communication and outreach to parents.
5. Parents expect to stay current via Athenaeum Speaker Videos.
6. Parents increasingly prefer electronic transactions and want to be easily connected by information technology means in the case of emergencies.
7. The Parents Network relies on information technology for delivery of programming.

Alumni

1. Alumni increasingly rely on the web for information and services.
2. Alumni expect to communicate and network with the campus and each other online through quality web-based services, dynamic alumni directories, and bulletin boards, html e-mails, and social networking sites.

3. The CMCAA expects advanced web capabilities to facilitate organized alumni activities, including chapter management, channels allowing access to giving history, event listings, announcements, and volunteer organization management, including online registration and payment.
4. Alumni expect CMC to provide lifetime e-mail forwarding.
5. Alumni expect accessible web-based professional and career services.
6. Alumni expect the online image of the College to reflect positively on their professional image and academic background.
7. Alumni may use the web to continue their connection with the College.
8. Alumni seek to establish mentor networks with current CMC students.
9. Alumni may be interested in assisting the College in the web with their business connections and unique talents.
10. Alumni will continue to look for online convenience when offering financial support.
11. Alumni expect to stay current via Athenaeum Speaker Videos.

The Claremont Colleges Consortium

1. The Claremont Colleges Consortium remains a vital strategic asset for CMC.
2. CMC should identify opportunities for new technology initiatives that will take better advantage of consortial resources, as well as existing academic and administrative areas in need of improvements.
3. ITS should continue to assist CMC in its leadership role in guiding the development of the Consortium.
4. CMC should utilize the Consortium to build strategically on its comparative strengths, while drawing selectively on the strengths of others within the Consortium. CMC should also take advantage of management economies of scale in both academic and administrative areas, including shared services and lead college information technology initiatives.
5. CMC should encourage closer faculty contact across the colleges and examine ways to reduce barriers to cross-registration.
6. CMC should examine ways to enhance existing institutes and lecture series, and develop more consortium-wide venues to foster intellectual community.
7. CMC should ensure that existing joint programs, including the joint science and joint languages programs in particular, are effectively meeting the needs of our students.
8. It is essential that CMC provide a safe campus to its students, faculty and staff.
9. Originally, the Student Information System was intended “to provide a so-called ‘cradle to grave’ database, from admission, financial aid and matriculation through graduation and into alumni records.” While it has replaced registration and student records software systems, it has not replaced College-specific software systems for admission and financial aid, development, financials, online access to student accounts and payments, or events scheduling as originally planned. Moreover, the management of the Student Information System has moved away from the CUC to a lead-college model vested at Pomona College.
10. CMC should continue its leadership role in assuring that reasonable and adequate resources are provided to, and appropriate services are being received from, such important Claremont University Consortium services as financial services and human resources.

11. Information Technology in the Consortium is undergoing great change and the future initiatives are sufficiently unclear that ITS must prepare contingency plans and focused attention on how CMC can remain good partners even while retaining secure and support-centered IT standards.

External Community

1. The external community increasingly relies on the web for information and services.
2. The external community expects to be able to find complete and easily accessible information about College activities and services.
3. The external community expects transactional services (e.g., registration, donations) to be available through the web.
4. The external community expects the online image of the College to reflect positively on the community and the region.
5. National business, industry, and organizations use the College web site as a recruitment tool.

Information Technology and CMC's ITS Department

Technology

1. Technology changes rapidly and will continue to do so.
2. The use of information technology and information resources is critical to CMC's competitiveness as an institution.
3. Access to information technology is a necessity for every individual at CMC, with increasing emphasis on mobile computing.
4. Information technology is a mission-critical part of the institution's infrastructure, comparable to electricity and other utilities, yet at this time we continue to struggle for funding and maintaining both wired and wireless mission-critical network resources.
5. CMC's implementation and use of information technology is becoming more consistent across the campus.
6. Emerging technology applications will require greater emphasis on faculty and staff training which is continuous and provided "across-the-board" for all employees at CMC.
7. Technology is not a goal in and of itself. Technology is a tool to help us achieve our goals.
8. Effective use of information technology requires openness to learning and a willingness to change within the organizational culture of the institution.
9. Implementation of technology will change the way we work; no one will escape these changes.
10. The College tries to extend the life of existing technology for financial reasons. While this is a reasonable approach, the goal of CMC should be to balance the need for regular upgrade/replacement of equipment with a consideration of when the current technology is good enough to meet current needs, and total cost of ownership must be a factor in making this decision.
11. Some technology directions and acquisitions will continue to be externally mandated by organizations such as accrediting agencies and the state with little or no opportunity

for CMC to give input into the decision. Many of these mandates are unplanned and unfunded.
12. The College will continue to support those departments and individuals that are creative in their use of information technology.
13. Technology has a certain “play” factor and creativity that must be encouraged and explored.
14. Use of the World Wide Web will continue to increase instructionally and administratively.
15. Demand for 24x7 services and access to things such as electronic mail, distance education and mission critical applications is increasing.
16. CMC must begin to address issues associated with support of portable, wireless and mobile computing.
17. Issues related to data and system security are increasing, requiring ongoing assessment of security risks and taking appropriate actions to protect the data of the College.
18. The number of multi-media classrooms at CMC has and will continue to increase, leaving the College with staffing issues that must be addressed for adequate support of these rooms.

Web

1. The web will continue to evolve rapidly, as new developments in mobile computing demonstrate.
2. College guidelines should promote consistency in web development.
3. The College and external community expect the CMC web site to reflect state-of-the-art technology and design.
4. Effective use of the web is critical to our competitiveness as an institution.
5. Web access is a necessity for every individual at CMC, and an increasing number of faculty and staff use the web off-campus (at home) for work-related responsibility.
6. The web is a tool to educate and inform both internal and external communities.
7. There will be increasing use of the web for interacting with databases and transacting business to help academic and administrative support areas function more efficiently and effectively
8. Compliance expectations of accrediting agencies, legal strictures, and external organizations for the web have increasing impact on campus resources.
9. The web requires continuous and increasing development and maintenance, which has substantial impact on staffing, such that as dependence on the web increases, personnel to support web development should also increase.
10. CMC images used on our web site need to be refreshed frequently.
11. Information on the CMC web should be accurate and current.
12. One of the means CMC has adopted to ensure frequent refreshing of images and maintaining the accuracy and currency of the web is to rely on content managers who require training in both the Content Management System as well as their roles and best practices in design.
13. The web is a major marketing tool for CMC, including recruitment and retention of students, staff, and faculty; alumni engagement; donor outreach; web-enhanced learning; public relations; and branding the College.

14. CMC ensures appropriate security of the site and protects confidential information.
15. All web infrastructure must be financially supported through appropriate annual allocations that are regularized in CMC budgets and properly forecasted.
16. Where appropriate, web resource decisions are data driven, bringing resources to those priorities established by the College's greatest needs, as defined by Senior Staff.
17. Appropriate training and support needs will increase.
18. Bandwidth needs will increase to support increased web traffic.
19. Resistance to adopting centralized and off-the-shelf solutions continues unabated resulting in best of breed choices as well as custom applications, requiring intense attention to scheduling and maintaining a fair queue process that recognizes institutional business needs and priorities.

Organization of Information Technology Resources & Personnel

1. The College effectuated a merger of what was formerly known as Information Systems and Technology and Educational Technology Services in June 2005.
2. Information technology technical support at CMC is primarily provided with a team of centralized IT professionals who carefully coordinate with stakeholders to ensure effective and efficient College-wide support.
3. ITS should have the technical expertise to provide information technology guidance and leadership for the College.
4. IT-related decisions and priorities are determined through an effective information technology governance structure; communication regarding decisions and priorities needs to be enhanced College-wide.
5. The current information technology planning process is well established in two committees: the Academic Computing Committee and the Administrative Computing Committee. While this is working well for setting College-wide strategic directions, there needs to be more emphasis on department-level IT planning, and the process of coordinating department-level IT planning with College-wide planning.
6. The College community's trust in the IT organization has improved, but there continues to be inconsistency in perceptions of the ITS organization across the College.
7. End users have an expectancy of "immediacy" in terms of IT support and assume that ITS professionals can help them with any and all IT hardware/software issues.
8. College-wide policies or procedures for acquisition, implementation, documentation and support for information technology and/or IT support services have been established; an ongoing effort is needed to keep these policies current and to communicate them within the College.
9. Although the current hours of operation for the Help Desk may not be sufficient to support the needs of the College, the Help Desk remains a valid and appropriate strategy for providing consistent IT support College-wide.
10. Information technology professionals must be customer-oriented and flexible in the delivery of services.
11. Policies and procedures recommended by ITS and established by the Academic Computing Committee and the Administrative Computing Committee will enable the College to make decisions based on accurate and reliable data.
12. College goals and objectives should dictate information technology directions, not vice versa.

13. CMC does not currently have an agreed upon set of service level agreements for IT services, and the adoption of an ITIL[1] approach should be considered.
14. Training for IT staff is a major issue; it is difficult to release staff for training because of demands on their time and the cost of training is a pressing issue due to rounds of budget cuts.

Information Technology Resources

1. At the present time, we expect to have a trough of significant decreases in funding from endowments.
2. CMC will experience exponential increases in the need to develop partnerships and collaborative efforts to increase availability of resources for IT.
3. CMC needs to develop a more aggressive centralized strategy for coordination of services and establishment of standards for the acquisition of technology to lower CMC's total cost of ownership for IT; this standardization issue is a very significant one for the College to address, and to be successful in dealing with this issue, all stakeholders must come together and agree that this is an important issue for the College.
4. CMC must maintain its approach to funding technology on a life-cycle basis.
5. While some hardware in the consumer area may be coming down in price, the cost of enterprise technology is continually increasing, because replacement hardware offers an expansion of complexity and options that reflect new standards of interoperability and security.
6. Today, used information technology hardware has very little resale value.
7. CMC must develop new and flexible approaches to funding information technology.
8. CMC will use data generated by technology to maximize efficiency and set priorities.
9. CMC will seek to provide technology training for faculty, staff and students.
10. The expanded use of the web and the Internet to enhance instruction means that many CMC faculty are using their own computing resources from home to meet the expanded demands of working with students in a 24x7 environment the requirement for faculty to be accessible from home as well as from the office is a growing issue, and requires easy access to materials.

[1] The Information Technology Infrastructure Library (ITIL) is a set of concepts and policies for managing information technology (IT) infrastructure, development and operations.

IV. Information Technology Guiding Principles

If Claremont McKenna College is to be successful in achieving its vision and accomplishing its mission and goals, it is not sufficient to do things right; the College must do the right things. Below, we list the Guiding Principles for Information Technology at CMC – simple, direct statements that describe what we believe to be good practice – all of which are based on the planning assumptions and vision for the use of information technology we have described above.

1. All faculty, staff, students, and other CMC community members should have access to information technology resources appropriate to their needs and responsibilities.

2. Access to resources should be provided by a network that is reliable, secure, and with minimal downtime, with the aim to maximize the utility of the system for all users, and promote connectivity to East Campus, facilities south of 6th Street, the Scripps, Pomona, and Pitzer campuses, Honnold Library, and Joint Science.

3. ITS is principally responsible for the overall planning for information technology that will best serve the entire College community, as well as the establishment and implementation of policies and standards to facilitate its use.

4. Information technology strategy must be aligned with and support the overall strategies of the College, and must be considered a critical component in all institutional strategic planning and budgeting processes.

5. The rapid growth of College reliance on information technology requires correlative investments of resources in ITS. To assure that business decisions recognize technology costs appropriately, budgeting mechanisms should be developed together with proper planning for funding depreciation of new technology assets.

6. Information technology planning at all levels must be coordinated and integrated across the College to allow ITS to develop and communicate a long-range vision of the direction of information technology and to create a single set of College-wide IT initiatives that can be prioritized and for which there are clearly identified dependencies and resource allocations.

7. Consistent with the College's Master Planning commitment to environmental sustainability, Information Technology infrastructure should reflect the utilization of "best practices" with respect to environmentally sustainable design, daily maintenance, and operation, and reflecting the College's building architecture principles, work to hide service infrastructure from view.

V. Ongoing Review Process and Continuous Cycle of Improvement

Strategic planning is an ongoing process. The goals and strategies set forth in this document require periodic review and assessment. It is the intention of CMC to incorporate review of the Information Technology Strategic Plan as part of the institution's overall planning process and to align the information technology planning process with the institution's budget cycle. A continuous cycle of improvement is warranted for campus information technology to meet current and future requirements.

Done properly, a continuous improvement process will identify problems and opportunities and thus help ensure that they are addressed. Accordingly, we intend to measure the progress of the IT Strategic Plan and to ensure that we are making significant achievement in realizing the vision of information technology at Claremont McKenna College. We intend to:

- perpetually monitor and evaluate new technologies appropriate for the College;
- regularly generate annual reports based on the IT Strategic Plan;
- update the IT Strategic Plan according to the results of assessments and new priorities; and
- work in concert with the College as it moves forward in updating its 2002 Strategic Plan to develop the parameters of our "Future Alignment of Information Technology with our Updated College Plan."

VI. Current Alignment of Information Technology with the 2002 College Strategic Plan

The Claremont McKenna College Information Technology Strategic Plan was developed to reflect the College's mission as affirmed in our Strategic Plan:

> ***Claremont McKenna College is a highly selective, independent, coeducational, residential, undergraduate liberal arts college. Its mission, within the mutually supportive framework of The Claremont Colleges, is to educate its students for thoughtful and productive lives and responsible leadership in business, government, and the professions, and to support faculty and student scholarship that contribute to intellectual vitality and the understanding of public policy issues. The College pursues its mission by providing a liberal arts education that emphasizes economics and political science, a professoriate that is dedicated to effective undergraduate teaching, a close student-teacher relationship that fosters critical inquiry, an active residential and intellectual environment that promotes responsible citizenship, and a program of research institutes and scholarly support that makes possible a faculty of teacher-scholars.***[2]

For the Claremont McKenna College Information Technology Strategic Plan to remain a truly effective tool for directing the use of information technology within the institution, it must remain aligned with the overall strategic planning efforts of the College based on this mission statement. Thus information technology planning is integrated into and plays an important part of the overall institutional planning process. It must reflect the role of information technology in helping the College to achieve its vision and to accomplish its mission, goals and objectives. Noting the external environment for CMC and Our Students, the 2002 Plan acknowledged that,

> CMC should also be cognizant of the major socioeconomic trends and conditions that will impact its students, and will present challenges and opportunities for the College as a whole," including the fact that "as higher education becomes more widely available through information technology, residential liberal arts colleges may become relatively more expensive than other forms of higher education. CMC's curriculum, educational goals and student learning outcomes will need to continue to provide an exceptional value to attract parents, students, and donors. (Page 3)

The 2002 Claremont McKenna College Strategic Plan specifically recognized the impact of science and technology:

> Increasingly, science and technology are essential to economic progress, advancements in healthcare, and environmental management. Information technology, in particular, has and will continue to change industry, economics, society, culture, and politics. It permits the introduction of new methodologies in teaching. It offers new potential for the reorganization of learning and enhances the means of communication between faculty and students. (Page 3)

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[2] Minutes of Board of Trustees Meeting, December 5, 1991.

> The sweeping global changes now underway require us to ensure that CMC students receive the knowledge and skills they will need to excel in an increasingly global environment. (Page 3)

Based on these understandings, the Strategic Plan attempted to build on CMC's identified essential characteristics to achieve the following overall goals over the next decade:

> To increase our effectiveness at educating students for thoughtful and productive lives and responsible leadership in business, government, and the professions, and supporting faculty and student scholarship that contributes to intellectual vitality and the understanding of public policy issues.
>
> To increase our leadership and effectiveness within The Claremont Colleges Consortium.

Claremont McKenna College's Strategic Plan recognized a set of chief priorities to meet the major goals. The first was the continued recruitment and retention of highly able students and an exceptional faculty of teacher-scholars. For these reasons, the substantive discussion of the Plan began by focusing on CMC's students and faculty. Many additional priorities were specified as well. All areas of the College were examined, with special priorities identified for each, including Information Technology. The sub-committee report titled, "Information Technology and Academic Computing," led to these observations:

> The College has made substantial investments in infrastructure and associated personnel in the information technology area. The strategic priority that the College now faces is to effectively implement these resources into the academic experience at CMC and improve our student learning outcomes. Thus, CMC now needs to focus on how information technology affects what our students learn and how they learn and also how our faculty can take advantage of these tools to be more effective and efficient.
>
> With respect to what students learn, an important question for the faculty to consider in the context of a curriculum review is how CMC can achieve and support student fluency in information technology. Fluency in information technology is achieved when students are current in modern technology and know how to conceptualize information technology so that they can continuously adapt to rapid change.
>
> Information technology also impacts the ways in which students will learn. When utilized correctly, information technology can permit more individualized learning, thereby enhancing the relationships between our students and faculty.
>
> The capital and personnel costs related to computing and information technology are additional costs that enrich our teaching and learning environment, and generally are not related to achieving operational efficiencies in a small liberal arts college environment. Presently our funding is almost entirely from unrestricted operating funds. Because information technology and computing are now an ongoing core part of our operations, and the need for sustained investment is clear, it is important that

CMC attempt to raise restricted funds and endowments to secure the ongoing information technology needs for our students, faculty, and staff.

Examination of both the 2002 plan and the sub-committee report on Information Technology from a functional perspective revealed five major strategic goals for what is now Information Technology Services:[3]

Strategic Information Technology Goal #1: Focus on Instruction, learning, and research – How technology is used effectively and efficiently to: a) enhance, deliver, and evaluate instructional initiatives and student learning; b) develop, enhance, support, and evaluate research initiatives; and c) provide high quality training and support for the use of information technologies to assure productivity and efficiency among students, faculty, and staff.

Strategic Information Technology Goal #2. Infrastructure and Security – The ongoing need for reliable, secure, appropriate, and cost-effective hardware, software and network access across the College, focusing on management of the total cost of ownership to the College over the technology life cycle and staying abreast of the advances in our infrastructure and facilities and continue thoughtful and efficient upgrades.

Strategic Information Technology Goal #3. Strategic Use of the Web and Web-based Technology – The development of a College-wide web strategy and the necessary support services required for the College to make strategic use of web-based technology for both internal and external communication, transactions, and information sharing.

Strategic Information Technology Goal #4. Service and Community – Using technology to improve the quality of life for the College community and the communities it serves, including our students; trustees; parents; alumni; consortium; and the external community.

Strategic Information Technology Goal #5. IT Organization, Policy Management, and Consortial IT Cooperation – To improve IT resources by reorganization, consolidation, and review of policies to foster better morale, greater communication, more productivity, and alignment with shifting legal obligations, as well as to foster better cooperation in consortial information technology initiatives.

In this section, we will focus on our progress to date. In the charts below, in the gray fields, we have identified specific relevant Claremont McKenna College Strategic Plan

[3] These five strategic goals were brought into alignment with institutional goals. They include and expand upon the four strategic goals originally identified as specific to Information Technology in the 2001 Strategic Plan for Information Technology at Claremont McKenna College: 1. To achieve and support student Fluency in Information Technology (FITness); 2. To support academic teaching and research; 3. To support students, faculty, staff, and administration with smoother and more efficient functioning of the College; and 4. To begin to establish the College as a leader in Information Technology in conformance with its unique mission, which extends beyond consortial relations into establishing a presence regionally and nationally in educational organizations dedicated to issues of information technology.

recommendations pertaining to these five overall goals that have required information technology alignment. After each recommendation, we then describe the ITS initiatives that have already taken place. We also include initiatives that have emerged since the creation of the Strategic Plan in 2002, and that we have acted on. In Section VII, we summarize expected next steps as we work with standing committees responsible for providing an update to the 2002 Strategic Plan.

Goal #1. Focus on instruction, learning and research

How technology is used effectively and efficiently to: a) enhance, deliver, and evaluate instructional initiatives and student learning; b) develop, enhance, support, and evaluate research initiatives; and c) provide high quality training and support for the use of information technologies to assure productivity and efficiency among students, faculty, and staff.

Specific College Recommendations and correlative ITS initiatives

1.1. Recommendation: Recognize the importance of information technology and academic computing in our curriculum; work to achieve and support student "fluency" in information technology so that we succeed in educating students to be effective consumers and producers of information.
1.1.1. As faculty incorporate information technology into their classrooms, demand for technology in learning spaces has grown greatly. The technology in all classrooms are now "smart." ITS staff support faculty in and promote the use of technology resources to enhance classroom based instruction. In 2007, we implemented Roomview for remote support of classroom equipment to speed our response time. In 2008, we replaced ailing classroom equipment with new Crestron Equipment in Roberts classrooms, and our complaints and customer service calls in the rooms plummeted. The Bizantz classroom was added in the Spring 2009.
1.1.2. Beginning in 2002, then Associate Dean for Academic Computing met with each faculty department on campus to prepare a recommendation to the Faculty about how to achieve and support student "fluency" in information technology. In May 2003, the Faculty voted unanimously in favor of an "across the curriculum" approach to student fluency as recommended by the curriculum review subcommittee charged with its investigation.
1.1.3. Assisting students in gaining "fluency" was greatly helped by the $500,000 Fletcher Jones Foundation Student Peer to Peer Program to Ensure Student IT Fluency Program 2004-2007. This $500,000 grant provided us the means to develop training courses for dozens of students to begin a peer to peer training program, and helped jumpstart our needs assessment of our student body. It is still the basis for our student FITness outreach today.
1.1.4. ITS has developed seven online study guides specific to the seven FITness goals recognized by the Faculty. These are maintained annually, and provide ongoing 24/7 support for students.
1.1.5. Most of the funding provided by the Fletcher Jones grant was not continued, so we now have just one Student Technology Services staff member, down from two in

prior years, making the coordination of student training problematic. To counter this, we have partnered with the Writing Center to continue delivering workshops, and provide hands-on training for students in our labs during certain stated hours.

1.2. Recommendation: Enhance the faculty's teaching excellence ought to be pursued by expanding and consolidate the Teaching Resource Center ("TRC"), as it extends its activities in non-technology based pedagogical training as well as instructional technology.
1.2.1. The Teaching Resource Center was directed within the Academic Computing arena from 2002 to the summer of 2005. With the merger of Educational Technology Services and Information Systems and Technology in June 2005, direction of the Teaching Resource Center was assumed by an Associate Dean of the Faculty.
1.2.2. Instructional technology support continues and is located in a small subdivision of Information Technology Services. In concert with the TRC, ITS arranges training sessions for students in the fluency skills, works with faculty to design special training for classes, and offers faculty workshops.

1.3. Recommendation: Hire educational technologists (preferably one in science a second in humanities and a third in social science) to work with faculty members to create improved course content and support enhanced student educational experiences.
1.3.1. By way of grants, the College succeeded in hiring four instructional technologists by 2005. Since then, funding in the area of instruction, learning, and research now supports one instructional technologist, and a second opening previously slated as an instructional technologist is in the process of being revised to require expertise in both instructional as well as student technology.
1.3.2. Instructional technology student assistants provide excellent support for improved course content. Here, too, we have funding issues, as monies previously available in our Student Technician Assistant Team have been lowered even as wages and demands have risen.

1.4. Recommendation: Explore the provision of distance learning to our traditional constituencies (specifically, the creation of an Alumni College; consider supporting on-line CMC courses to ensure fulfillment of GEs so that our students are not impeded from the undergraduate experience of study abroad).
1.4.1. A pilot course was created and tested as an Alumni College venture. The results were not overwhelming, so this was discontinued.
1.4.2. Offering completely on-line courses have not been attractive to faculty. However, ITS has worked to assist in online placement services, including the implementation of the CAPE Spanish placement exam, and created and maintain Math placement exam since 2005. Providing resources online, too, continues to grow in popularity. In addition, our disaster preparedness plans include how to transition courses to online instances should the need arise.

1.5. Recommendation: Deploy and support a course management system to support online teaching components.
1.5.1. CMC took a lead role in the establishment of WebCT as the Course Management System for the Consortium under the auspices of a $650,000 grant from the Mellon Foundation granted in 2002. The success of this trial eventuated in the decision for all of The Claremont Colleges to standardize on a single course management system. ITS routinely conducts workshops for faculty and assists in the creation of digital resources for faculty use to augment their teaching.
1.5.2. Promote and communicate a coordinated approach and uniform guidelines to use of web course management tools
1.5.3. Completed the WebCT to Sakai Conversion Summer 2007; Sakai became our only course management system, requiring a great deal of work to bring over and manipulate specific elements not addressed during mass conversion and training of faculty.

1.6. Recommendation: Begin to establish the College as a leader in information technology in conformance with its unique mission which extends beyond consortial relations into establishing a presence regionally and nationally in educational organizations dedicated to issues of information technology.
1.6.1. We have made excellent progress in establishing a presence both regionally, nationally, and even internationally. We have made many presentations to EDUCAUSE: National 2006 - FITness to Fantasy Congress 2007 - Where Students Compute Regional 2007 - A Home Grown Student Employee Management Package 2007 - Where Students compute (Poster Presentation) 2007 - CMC's Journey of Migration from WebCT to Sakai We have also been very active in the Sakai (Course Management System) Community: 2007 - (Regional: West Coast) Sakai Symposium hosted at CMC 2007 - (International: Amsterdam) Learning Styles & Online Environments: Is It Possible in Sakai? 2007 - (International: Newport Beach) Hugs Not Shrugs: How CMC Learned to Embrace Sakai 2008 - (Sakai China) Sakai Best Practices Upcoming 2009 - (National: Boston) Sakai at the Claremont Colleges
1.6.2. In 2008, the CTO became a peer reviewer for EDUCAUSE Quarterly.
1.6.3. The CTO attended CIEE Program in Hyderabad and Bangalore (the Indian Silicon Valley), to establish connections and review experience to determine potential improvements for CMC's student trip to California's Silicon Valley.

1.6.3. Shawn Than (programmer analyst in ISNS) worked with Melissa Zhuo (instructional technologist in ITCS) to create a program to convert WebCT quizzes into Sakai. This program is very robust, and it has gained considerable acclaim internationally. We have heard from people as far away as South Africa and Australia who praised their work, and the CMC Quiz converter is now featured in numerous notices on contributions to the Sakai open source community, and now fully integrated into Sakai.
1.6.4. CMC's ITS staff are recognized internationally as experts in the use of Sakai, resulting in very high profile appearances at Sakai conferences. Indeed, The Sakai Foundation invited instructional technologist Melissa Zhuo, a native of Beijing, to give a presentation at the Chinese Regional Sakai conference at Wuhan, China and to serve as translator for Michael Korcuska, the Executive Director of the Sakai Foundation, in Beijing, China in spring 2007, and Instructional Technologist Benjamin Royas (a CMC alumnus) provided guidance to the American University in Cairo on how to migrate from WebCT to Sakai, and continues to present at national Sakai conferences.

1.7. Recommendation: Continue CMC's leadership role in discussions with the Mellon Foundation regarding its West Coast initiatives.
1.7.1. Successfully directed a $665,000 Andrew H. Mellon Foundation consortial grant, "Sharing Our Strengths," focusing us building alliances across the Claremont campuses and establishing CMC as the lead college in the consortium in support of educational technology from 2002-2005.
1.7.2. Worked with Mellon/NITLE to bring many programs to the colleges of the West Coast, including a NITLE sponsored 2005 conference on Learning Management Systems (CMC presented on the SOS Mellon Grant); hosting Al-Musharaka NITLE seminar June 2005; Claremont consortial delegation attending a conference on the state of the Library in March 2007; NITLE grant to host West Coast Sakai Symposium in July 2007; an e-Portfolio Seminar at CMC October 2007; attendance at NITLE planning seminars from 2005-2009; hosted NITLE workshops on teaching June 2009.

1.8. Recommendation: Work to support general faculty research initiatives as well as the CMC Research institutes so that all can continue to involve students and faculty in academic, applied and public policy research.
1.8.1. ITS assists CMC Research institutes in selecting technology equipment, including workstations, media, networking enhancements, backup solutions, printers, and other items, including, for example, the Bloomberg Terminal and other database solutions.
1.8.2. ITS provides direct support to specific faculty research projects outside of the institutes as well, including individual labs and dedicated research spaces for students and faculty. Smaller faculty research labs include those for G. Cook; D. Halpern, W. Hwang; T. Kanaya; C. Reed; Psychology Lab for Levin, Krauss, Costanzo in Adams Hall; M. Charlop-Christy and the Autism Center. We also maintain other common research spaces for the Writing Center; Debate Center; Language Residents; and the

Math Lab.
1.8.3. We have implemented Blackbaud Raiser's Edge and NetCommunity products for the institutes.
1.8.4. ITS manages and assists CMC Research institutes in their website presence.

1.9. New Item: Work to support the new Robert Day School programs.
1.9.1. ITS is working to provide a custom office management system for the RDS.
1.9.2. ITS has experimented with the RDS to build several versions of their website.
1.9.3. ITS initially built a new faculty hiring system for the RDS, which piloted the software, and it will be rolled out to all departments in fiscal 2010.
1.9.4. ITS engineered major changes in the Jenzabar student information system to accommodate the new master's program.
1.9.5. ITS is building both a graduate student admission application system as well as an RDS undergraduate scholar application system.

Goal #2. Infrastructure and Security

The ongoing need for reliable, secure, appropriate, and cost-effective hardware, software and network access across the College, focusing on management of the total cost of ownership to the College over the technology life cycle and staying abreast of the advances in our infrastructure and facilities and continue thoughtful and efficient upgrades

Specific College Recommendations and correlative ITS initiatives

2.1. Recommendation: Build a robust and secure systems infrastructure.
2.1.1. At the time the Strategic Plan was crafted, CMC's Storage Area Network was experiencing considerable downtime. Downtime continued despite remedial attempts. In early 2006, this unit was replaced with a BlueArc Network Attached Storage device that dramatically improved our ability to maintain systems with five nines uptime.
2.1.2. During 2007-2009, the server room was dramatically refurbished to bring it up to acceptable standards. Improvements have been made for HVAC – including the fabrication of a divider to separate hot and cold air, thereby increasing the efficiency of the HVAC system. Old battery backup systems were replaced with enterprise counterparts which now has full redundancy for all systems. As we retire equipment, we are focused on consolidating resources by further adopting VMWare virtualization technology. Additional management software was implemented to track cooling and power utilization as well.
2.1.3. In spring 2007, ITS purchased and deployed a new LTO-3 tape library, which improved our data backup window.
2.1.4. OpManage server management software was deployed to monitor all resource utilization across the infrastructure.
2.1.5. ISNS expanded its use of VMWare virtualization technology to reduce physical

resource utilization and conserve power and HVAC required to maintain systems.
2.1.6 Comprehensive spam and anti-virus gateways (Postini and Ironport) were deployed to further protect end users and provide a more robust email infrastructure.
2.1.7. The directory of all users and computers (MS Active Directory) was restructured, allowing ISNS to take advantage of Group Policy and other management automation tools.
2.1.8. ISNS deployed an Identity Management appliance (TNT Identity) in order to track network and software access to critical systems. This solution was initially deployed with the upgrade of the Onity campus-wide key card system.
2.1.9. In 2005, all server hardware was reviewed for redundancy. Critical production systems were migrated to enterprise-grade hardware that increased the availability of the corresponding applications.
2.1.10. In addition to our network firewalls, we have also implemented software firewalls on critical servers to further segregate the flow of information.
2.1.11. The Sophos anti-virus enterprise management console was upgraded and currently manages all updates and potential virus activity concerning our systems.
2.1.12. ITS performs regular security maintenance on systems, such as patches and upgrades. Determine the severity of the patch or upgrade and plan accordingly to ensure the highest possible runtime for critical systems.

2.2 Recommendation: Build a robust and secure network infrastructure.
2.2.1. ITS implemented a perimeter firewall to protect computers outside of the central cluster, and we continue to upgrade our firewall equipment to the latest industry specifications (we currently utilize Cisco ASA devices). Access to any server that requires authentication from outside of our firewall is now allowed only via encrypted protocols (VPN, HTTPS, IMAPS, etc).
2.2.2. Monitoring network activity to identify attempted intrusions: We have an internal IPS sensor that monitors the network for malicious activity. Netflow accounting is also in place to identify host transactions that also aids in identifying the source of malicious activity. There are additional means we could implement that would provide insight into security threats, but they have cost implications.
2.2.3. We continue to work to ensure all switches have appropriate UPS (uninterruptible power supply) and are physically secured and temperature controlled. Shared network spaces are difficult to secure, and we continue to seek partnership with Facilities to transition these spaces.
2.2.4. Developing an enterprise-wide security architecture which allows us to have multi-tiered defenses: we continue to build our network topology using industry standard methodologies.
2.2.5. Implementing practices designed to prevent security problems, including network segmentation, virus and spyware detection: We have used network

segmentation to assist in reducing security problems. TrendMicro is used to provide persistent virus and spyware/malware scanning for faculty and staff workstations. Students are required to run virus detection, which is enforced through our RTA program. An deployment of Sophos anti-virus software is used to protect all enterprise systems.
2.2.6. CMC continues to be a leader in wireless initiatives in Claremont. We were the first campus to deploy a captive portal for our users, and continue to investigate upcoming wireless technologies and their potential use within our infrastructure.
2.2.7. With the purchase and implementation of Cisco Wireless LAN controllers, we are able to manage our infrastructure of access points more efficiently, and provide enhanced security. Reports on rogue access points allow us to remove offenders easily.
2.2.8. (See also 5.5.4.) Bring up central Claremont LDAP: This resource, “lightweight directory access protocol,” is a CMC lead college project for the consortium. It provides a central LDAP proxy for The Claremont Colleges which allows all of the wireless controllers within the colleges to authenticate off of one source. Now a CMC account can be used on a central wireless network delivered across a non-CMC network. Among other possibilities, in the future it will provide a central online directory for Claremont contact information.
2.2.9. Identity Management solution and a Network Admission Control Solution. What the Identity Management solution and NAC will do is give ITS more ability to centrally manage the provisioning and de-provisioning of identities, and to help consolidate the proliferation of identity stores. In less technological terms, this will allow us to transition CMC computing into an integrated system of business processes, policies, and technologies so that we can control our users' access to critical online applications and resources and yet protect confidential personal and business information from unauthorized access. It is an important step toward reducing the number of sign-ons required of our end users. The actual technology solution will be deployed by ISNS, but I will be working via committees to establish access policies for access to CMC data. There will be a lot of administrative labor interfacing with departments to make this effort a success.
2.2.10. All new network hardware deployments include fault tolerant power configurations, which was not possible in older equipment. We continue to evaluate cost effective options that will enhance the robust nature of our network. This is especially critical as all business critical functions converge onto the network (Voice over IP, emergency contact systems, etc)
2.2.11. Continued upgrades to staff and faculty VPN access, including research of current technology trends such as SSL-VPN which could aid in remote access for CMC employees working while on the road.
2.2.12. Continued maintenance and management of robust external DNS (Domain Name Services) systems. This continues to be a critical component of the network infrastructure as it translates the common names that we use to access CMC systems (e.g. www.cmc.edu/mail) into the corresponding system addresses that ultimately route end user requests to the correct location.

2.3. Recommendation: Provide leadership on planning for information technology in new capital projects.
2.3.1. Claremont Boulevard Building; new faculty work area in Frazee; Center Court; Claremont Hall; Biszantz Family Tennis Center; Auen and Fawcett dormitory upgrades, Kravis Center, Ryal Residential Lab. Network Services, especially, has invested heavily in each of these projects – including the oversight and management of IT-related labor in the field. We continue to work with the Department of Construction regarding these projects.
2.3.2. Data Center and IT needs in Kravis; we have been involved in this initiative for several years. ISNS staff will continue to be involved in the day-to-day build and implementation of this critical space.
2.3.3. The 2009/10 Master Planning process will be a major initiative of the Board of Trustees Building and Grounds Committee; as a staff member of that committee, the CTO will provide input and assist as necessary.
2.3.4. Work with project management firms, general contractors, and others in coordination with the Department of Construction to help avoid accidental interruptions in ITS service by requiring proper sign off from ITS. This includes the routing of cable through conduit and the utilization of proper telecommunications hardware including good grounding and electrical surge protection practices.

2.4. Recommendation: Develop and support appropriate administrative information services to build efficiency and improve business operations.
2.4.1. Converted data from 1032 to the new Advancement system, the Raiser's Edge.
2.4.2. Continue to process data feeds between Raiser's Edge, Datatel, and CX.
2.4.3. For Admission/Financial Aid, ITS implemented a web front-end (NetPartner) to PowerFaids – which allows students to view their aid information over the web. The PowerFaids system also changed architectures and the underlying database conversion from Sybase to MSSQL was accomplished.
2.4.4. CMC continues to be involved in the Claremont-wide ADP/E-Time implementation. We are currently working with the consortium to implement organizational structure within the E-Time system in order for student workers (and select staff) with multiple department/employers to be able to account for their time accordingly.
2.4.5. CMC migrated from the use of Kronos time keeping software hosted on our campus systems, to the same software branded as ADP E-Time hosted off campus by ADP. Network modifications to time clock devices were coordinated with Claremont IT departments and implemented successfully.
2.4.6. Online faculty hiring system: This project came to us the week before school started in 2008 when the RDS asked if it would be possible for ITS to contribute monies and help them implement a $42,500 software system called PeopleAdmin to use for their faculty hiring; instead, we conducted a stealth review of PeopleAdmin by

posing as potential candidates for jobs at various colleges that were using PeopleAdmin, documented all process steps, and built our own system that went live on October 15th.
2.4.7. Despite great effort to convert the 1032 administrative system into the central ERP system of Jenzabar, the College ultimately decided to change direction and conduct a needs assessment and review potential alternatives to suit the specific business needs of Advancement and Alumni Relations in late summer of 2005. In early December 2005, a contract was signed to purchase Blackbaud Raiser's Edge. ITS succeeded in converting 1032 into Blackbaud Raiser's Edge, allowing Development Services to manage effectively and balance all Development books with the Business Office/General Ledger, reconciling perfectly to the penny with the Treasurer's Office every month since its first use in August, 2006. ITS also successfully deployed and linked Researcher's Edge to Raiser's Edge as well, providing powerful analytical tools to our Major Gifts and other Development staff, and has not incurred any problems. ITS continues to provide a robust computing environment for the Advancement system, and perform critical system upgrades while maintaining the least possible amount of down time.
2.4.8. Implemented Blackbaud NetCommunity – a web portal for alumni to interact with Raiser's Edge data. When the final customization of this third product experienced some difficulties (due in part because so many different offices on campus became involved in its use other than the Development and Alumni Relations, such as Career Services, Student Services, Office of the President, and the Parents Association), in March 2007, the College took the initiative to transfer responsibilities for the Blackbaud portal buildout and ongoing technical database management from Development Services to Information Technology Services. ISNS succeeded in bringing NetCommunity online in June 2007. The one employee dedicated to the project continues to report to ITS under the direct supervision of the ISNS Director.
2.4.9. Online request systems – ITS staff developed web forms in order to standardize the collection of recurring request forms such as the Capital Equipment Requests and Media Equipment Requests. ISNS developed a Blackbaud request system to track all change requests regarding the Raiser's Edge and Blackbaud NetCommunity.
2.4.10. Since 2006, Network Services has upgraded and continues to provide support for the Onity Integra key card system, moving away from the Blackboard card system. This upgrade included a major data conversion process that presented challenges. With extensive cooperation and troubleshooting with Story House staff, we continue to build on this critical system for the college and now have enabled immediate cross-campus lockdown capabilities.
2.4.11. Upgraded CMC's implementation of business intelligence software (Cognos, Report Net). Developed new models and reports for Admission.
2.4.12. Developed Advancement reports for several initiatives including The Campaign for Claremont McKenna College. Continued development and support of canned and custom Crystal Reports concerning the Raiser's Edge.
2.4.13. Purchased and continue to coordinate the planning for the implementation of Blackbaud's business intelligence offerings in the form of a data warehouse, various development score cards, and additional reports.
2.4.14. Implemented a database management system for the Athenaeum.

2.4.15. Developed custom online staff job application system in coordination with Human Resources.

2.5. Recommendation: Assist College Financial Planning for a comprehensive analysis of the transfer rate for renewal and replacement reserves by providing input regarding actual projected capital replacement requirements adequate for Information Technology capital and networking infrastructure to be incorporated into the master planning process.
2.5.1. Network and systems: ITS has created a standards document and provided detailed information on our inventory and rotation schedules.
2.5.2. Workstation rotation: ITS has created a standards document and provided detailed information on our inventory and rotation schedules.
2.5.3. Classroom rotation: ITS has created a standards document and provided detailed information on our inventory and rotation schedules.

Goal #3. Strategic Use of the Web and Web-based Technology

The development of a College-wide web strategy and the necessary support services required for the College to make strategic use of web-based technology for both internal and external communication, transactions, and information sharing.

Specific College Recommendations and correlative ITS initiatives

3.1. Recommendation: Provide for the expansion of media outreach through technological means
3.1.1. ITS moved the thousands of unique pages in our CMC website into Hannon Hill Cascade Web Content Management system, a content management system other Claremont Colleges had adopted in the spring of 2007. After usability testing, we decided to create a custom application based on open source software with similar features as those of Cascade but with a more accessible GUI and more simple programming. The new custom application was completed in summer 2007 and all pages were populated into the system in early fall 2007 over the course of a single night.
3.1.2. Establishment of a Content Management User Group: By late fall 2007, 50 staff persons were trained and actively using the CMS system to update their portion of the web, and we also began to have some active users of our web photo gallery software.
3.1.3. Blogging was enabled in spring 2009.
3.1.4. Maintained and augmented web statistical package (Jawstats front-end to Awstats engine).
3.1.5. Enabled Site Search account with Google to improve web search on CMC web pages.
3.1.6. In Spring 2007, ITS built out an offsite web presence for emergencies.

3.1.7. We continue to develop streaming media services for video and audio content.

3.2. Recommendation: Enhance website content with a focus on key messages and descriptors, increased rotation of content and photography for use on website and in publications.
3.2.1. Enabled image rotation
3.2.2. Implemented photo gallery web application
3.2.3. Retired domain name of “mckenna.edu” and implemented “cmc.edu” and planned for corresponding fallout and disasters.
3.2.4. Assisted Development and Public Affairs in improving web branding and marketing by participating in Michael Stoner's review of CMC's web site.

3.3. Recommendation: Continue ongoing activities with a focus on alignment with current events, faculty op-eds, and the Athenaeum and other programming.
3.3.1. Streamlined home page editing for Public Affairs
3.3.2. Maintained and troubleshot the CMC news RSS feed
3.3.3. Implemented a database management system for the Athenaeum; provided overflow venue media support – including Video over IP distribution. Continued support of the Athenaeum online video streaming library.

3.4. Recommendation: Enable web services to provide easy access to College resources.
3.4.1. We continue to evaluate new VPN technologies to tunnel college network traffic through web based protocols such as HTTPS (encrypted web channels). Due to the wide variety of networks that are encountered while traveling, for example, VPN is not always supported properly. This can lead to disconnects and other annoyances that cannot be controlled by ITS. The trend toward web-based protocols will address many of these issues.
3.4.2. Developed a robust Terminal Services environment for the Raiser’s Edge and continued to expand the use of Terminal Services to test the deployment of other administrative applications using this technology. Researched advances in Microsoft Terminal Services within Windows Server 2008 to deploy Terminal Services applications over secure web protocols (HTTPS). This will remove the requirement to access applications using a VPN client.
3.4.3. WebDav: Enabled easy network file access (U-drive) from on or off campus for faculty and students.
3.4.4. In 2007, ITS secured informational and transactional activities on the web including the real-time processing of credit card payments utilizing Ticketmaster/IATS.
3.4.5. We continue to develop the student portal of the Jenzabar Internet Campus Solution.

3.4.6. Continued implementation of Blackbaud NetCommunity.
3.2.7. Implemented web access to Financial Aid information – Netpartner.
3.2.8. Implemented a secure, web-based CMC password reset system to alleviate the requirement to change your password on a computer located on the campus network.
3.2.9. Continue to support web access to staff and faculty email – including web email for mobile devices (Exchange Active Sync).
3.2.10. Provided web-based access to student email hosted using Google Apps.
3.2.11. Upgraded web-based business intelligence infrastructure (Cognos, ReportNet) in order to deploy reports in a web portal.
3.2.12. Partnered with the Treasurer's Office to implement web-based tuition billing and payment system – CASHNet. First digital bill will go out in August 2009.

Goal #4. Service and Community

Using technology to improve the quality of life for the College community and the communities it serves, including our students; trustees; parents; alumni; consortium; and the external community.

Specific College Recommendations and correlative ITS initiatives

4.1. Recommendation: Enhance student life and learning by providing quality IT resources in residential halls and easy access via the web
4.1.1. The measures of student happiness with Information Technology considered in the UCLA Higher Education Research Institute Senior Survey (HERI) of the class of 2008 show high marks across the board as compared to the responses from other like institutions nationwide. Three of 22 measures studied relate to computing. Even within CMC, IT fares extremely well in terms of students reporting that they are "satisfied" or "very satisfied" with IT at CMC. Of the 22 CMC indicators, Availability of Internet Access shows the highest level of satisfaction (88.3% of our students are "satisfied" or "very satisfied"; we are higher than our other like institutions by 15 percentage points); ITS's Computer Facilities rank third (81.7% of our students are "satisfied" or "very satisfied"; higher than our other like institutions by 13.3 percentage points); and our third IT measure, Quality of Computer Training/Assistance, comes in at #12 of the 22 measures at CMC, with 65.4% of our students expressing that they are "satisfied" or "very satisfied." This third measure is higher than our peer institutions by 11.7 percentage points.
4.1.2. Networking: our excellent rate of ports to pillow, speed of the internet, and strong wireless resources have led to our receiving the #1 ranking of all 22 CMC indicators in the UCLA Higher Education Research Institute Senior Survey (HERI) of the class of 2008. We routinely score very well in this area on this study; a full 88.3% of students queried reported being "satisfied" or "very satisfied," and we are higher than our other like institutions by 15 percentage points.

4.1.3. Access to user resources: ITS maintains user drives for all students that are generous in size and backed up daily.
4.1.4. Our Resident Technician Assistant team (RTAs), online student help system, and training in our labs has helped us in our third IT measure, Quality of Computer Training/Assistance, coming in at #12, with 65.4% of our students expressing that they are "satisfied" or "very satisfied," which is higher than our peer institutions by 11.7 percentage points according to the UCLA Higher Education Research Institute Senior Survey (HERI) of the class of 2008.
4.1.5. Our Residential labs (South Lab in Stark Hall and Ryal lab in Phillips Hall), combined with our academic labs (Roberts North 12, Poppa Lab in Adams Hall, and Bauer Technology Center) are greatly appreciated, resulting in satisfaction with our Computer Facilities receiving the #3 ranking of all 22 College indicators in the UCLA Higher Education Research Institute Senior Survey (HERI) of the class of 2008. We routinely score very well in this area on this study.
4.1.6. Implemented broadcast television access over the CMC residential network. Using advanced video encoding appliances and robust network technologies we delivered high definition television programming to students. This initiative was well received and the demand quickly grew for additional programming. We have continued to research the latest trends in this technology and are ready to augment its deployment with the infusion of monies in our budget.
4.1.7. Added Google email account provisioning tools for students, including password management utilities and the ability to configure mobile access to email.

4.2. Recommendation: Assist in the maintenance of a safe campus through technological means
4.2.1. Maintained initial implementation of security cameras managed by Dotworkz corporation.
4.2.2. Upgraded security camera software to all hardwired network and implemented industry standard OnSSI, which has improved the stability of the solution.
4.2.3. Continue to add cameras, storage, and system resources to the security camera project in order to accommodate new and upcoming building projects.
4.2.4. Developed an emergency notification system that provides reliable and vital information in the event of a campus need for immediate action, assistance, or relief.
4.2.5. Partnered with Facilities staff to implement online door locks as well as a lockdown procedure for emergency situations.

4.3. Recommendation: Improve the student information system
4.3.1. When CARS was acquired by Jenzabar and named Jenzabar CX, the five colleges were challenged by a very different organizational culture than that of the original CARS. While improvements have been attempted, the required linkages to the other participating colleges have led to complications. The current system is very stable, if cludgy, and the administrative backend and uptime for cross-registration is

much better than that experienced in 2002. Jenzabar has not succeeded in becoming the ERP the five colleges had hoped; the trend is adoption by each college of “best of breed” solutions.
4.3.2. Portal upgrades completed in Spring 2009.
4.3.3. Online registration piloted in Spring 2009.
4.3.4. Continued support of administrative offices concerning the student information system – including CX screen modifications, troubleshooting, report generation, report modification, etc.

4.4. Recommendation: Assist the College in enhancing career services by implementation of quality information technology
4.4.1. Completed a Career Services web interface to Raiser’s Edge database for undergraduates and a Graduate Career Services web interface to Raiser’s Edge.
4.4.2. Created a Skype-base interviewing station for prospective employers.
4.4.3. Assisted in the implementation of the web-based service, Symplicity.
4.4.4. Assisted in the implementation of the web-based service, Going Global.

4.5. Recommendation: Enhance information technology services, chapter and regional events, and programs for alumni
4.5.1. Implemented and continue to support Blackbaud Raiser’s Edge for the Alumni office.
4.5.2. Upgraded the NetCommunity system to enhance the functionality surrounding chapter events and online registration.
4.5.3. Partnered with Alumni Relations to create specific online Alumni Directories based on chapter association.
4.5.4. Developed a custom Alumni census and survey web application that pulled information from Raiser's Edge and processed new information from alumni for input back into the Raiser's Edge.

4.6. Recommendation: Enhance information technology services, regional events, and programs for parents
4.6.1. Implemented and continue to support Blackbaud NetCommunity.
4.6.2. Upgraded the NetCommunity system to enhance the functionality surrounding parent events and online registration.
4.6.3. Produced a web-based version of the parent survey.

4.7. Recommendation: Enhance information technology services to support trustee

operations
4.5.1. Implemented and continue to support Blackbaud NetCommunity. This is used as a portal for board rosters and materials.
4.7.2. Researched board management software from several leading vendors including BoardVantage and Board Books. Implemented administrative staff toolkit from BoardVantage to provide time savings and other efficiencies for the board book creation process.
4.7.3. Researched NetCommunity, BoardVantage, and Survey Monkey for possible trustee survey solutions. The BoardVantage solution is desired, but cost prohibitive at this time.

4.8. Recommendation: Adopt a support policy for hardware and software that permits users to have maximum freedom of choice within the framework of budgetary and staffing constraints.
4.8.1. Beginning in 2005, ITS began a new policy of supporting both Apple and PC configurations for staff and faculty. For capital rotation, both platforms are reviewed and recommendations made to enable standardization.
4.7.2. For the past several years, members of the Client Services unit have had Dell Certification, and now we have a staff member who is Apple certified. This professional development has allowed us to provide extremely fast service to our community and bill back if we perform the work ourselves.
4.7.3. In AY2009, a new policy allowing greater options for faculty purchase of non-standard computing equipment was crafted and approved by the Committee on Academic Computing, which recognizes staffing constraints by minimizing staff responsibilities over all non-standard purchases.

Goal #5. IT Organization, Policy Management, and Consortial IT Cooperation

Strategic Information Technology Goal #5. IT Organization, Policy Management, and Consortial IT Cooperation – To improve IT resources by reorganization, consolidation, and review of policies to foster better morale, greater communication, more productivity, efficiency, and alignment with shifting legal obligations, as well as to foster better cooperation in consortial information technology initiatives.

5.1. Recommendation: Work to reorganize and consolidate IT human resources.
5.1.1. The creation of Educational Technology Services in 2002 led to many innovations for Academic computing.
5.1.2. In late June 2005, Educational Technology Services and Information Systems and Technology were merged and some positions downsized to become Information Technology Services. Over the next year, ITS consolidated and integrated the two technology and computing divisions, bringing together Academic Computing,

Student Computing, Media Services, Administrative Systems, User Support, Help Desk, and Networking.
5.1.3. Over a period of several years, each position in the newly consolidated unit was reviewed, new job descriptions crafted, and in Fall 2007, ITS underwent a market benchmarking and correction exercise in cooperation with the Treasurer's Office and Human Resources, all of which has resulted in now stable staffing.
5.1.4. In 2005-06, a professional development plan was formulated to support and align members to become competent and expert in those activities required by the College that were best suited for them in both aptitude and interest. This plan is reviewed annually.

5.2. Recommendation: Work to improve IT office and work spaces.
5.2.1. Server Room and Systems Analysts: conducted electrical overhaul and UPS replacement; HVAC evaluation and reconfiguration which removed mechanical equipment from staff workspace, thereby providing a more appropriate office environment.
5.2.2. ITCS office consolidation: ITS remodeled Roberts South 12 and 13 to make dedicated rooms for secure storage, help desk, and deployment areas.
5.2.3. ISNS office consolidation: The Director and Assistant Director, CX analyst, and project manager are now all co-located, resulting in greater efficiencies.
5.2.4. Networking office consolidation: Offices in Bauer core and South basement resulted in greater efficiencies.
5.2.5. Collocation of CTO and ITS Business Manager continues to be helpful.

5.3. Recommendation: Develop improved avenues of communications with stakeholders.
5.3.1. In 2005, outreach to our four major groups of stakeholders was reviewed, and plans formulated to establish improved communication avenues to align IT with business needs. A former student information systems committee was transformed to become the Administrative Computing Committee, which meets monthly to address IT concerns throughout the College related to staff offices; the Committee on Academic Computing was revamped to focus specifically on faculty and students rather than all constituencies; and external outreach was regularized by the creation of the Information Technology Advisory Board, which allows improved access to trustees, parents, alumni, and interested friends of the College.
5.3.2. A Communications Plan was developed that sets standards for ITS to communicate regularly with clients about downtime, scheduled maintenance, and so on. Our practice of distributing messages to the community acknowledging problems as they emerge and forewarning end users of expected systems downtime have also improved our communications.
5.3.3. In 2009, an online RTA Request and Tracking System, a Media Request and Tracking System, and an online student HelpDesk Request and Tracking System were

launched, with an application for staff and faculty to be rolled out in summer 2009.
5.3.4. ITS participated in a Communications Assessment with the Spring 2009 Organizational Psychology course led by Professor Susan Murphy, whose analyses we hope will help us plan better outreach through our website.

5.4. Recommendation: Improve review of information technology policies and procedures.
5.4.1. Mandated Policies have been updated: In July 2005, the information security program (the "Program") mandated by the Federal Trade Commission's Safeguards Rule and the Gramm – Leach – Bliley Act ("GLBA") was created; CMC's Red Flags Rule Policy was crafted in participation with ITS.
5.4.2. Nearly all CMC Information Technology Policies have been reviewed and updated, and new ones created: Acceptable E-Mail Usage; Anti-Virus Policy; Configuration for Out-of-Office Message; E-mail Distribution Lists; E-Mail Signature Block Standard; Submitting Mass E-Mails to Claremont McKenna College; Backup/Recovery of User Files on Network Servers; Departmental Technology Budget Upgrades; Faculty Technology Budget Upgrades; Replacement Cycle of Workstations; Staff Upgrade Budget; Standard Faculty and Staff Workstation Screen-Saver Policy; Standard Printer Hardware Configuration; Standard Workstation Hardware and Software Configuration; Change Management; CMC's Response to Student Violations of the Digital Millennium Copyright Act; Complying with the Digital Millennium Copyright Act; Employee Termination: Information Access and Resource Disposition; Claremont McKenna College Computing Usage Policy; Student Residential Network Use.
5.4.3. Our initial CMC IT Disaster Recovery and Security Plan has been completed, and ITS is working with others on the College's Disaster Recovery plan.

5.5. Recommendation: In the consortium, assist in improving academic cooperation, joint programs, and strategic opportunities for new programs
5.5.1. Leadership in the implementation of Course Management System: The CTO was the principal author and PI on a consortial Mellon grant at The Claremont Colleges for the development of faculty fluency in information technology, for which she coordinated and delivered resources to faculty of all partner institutions, including the launch and hosting of a shared course management system (WebCT), resulting in a proof of concept that has led to ongoing consortial cooperation in maintaining a single system, retiring four rival systems.
5.5.2. CTO served as the IT liaison on the consortial Business Continuity Task Force, leading to single choice of vendor for Blackboard ConnectEd as the principal means of communicating in a disaster.
5.5.3. As Director of Information Technology Committee chair, the CTO wrote the consortial report on Disaster Recovery for Information Technology that was jointly submitted to the all-college Business and Financial Operations Committee and

Information Technology Committee; successfully negotiated and wrote a wireless computing policy and plan; helped in the decision to standardize all TCC Information Technology departments on a virtual machine software platform, and helped coordinate purchasing, to better enable providing mutual aid to one another; and wrote the Consortial Memorandum of Understanding about how TCC work with one another and coordinate IT efforts.
5.5.4. (See also 2.2.8.) Created and maintaining LDAP: This resource, "lightweight directory access protocol," is a CMC lead college project for the consortium. For now, it is used for wireless authentication, and LDAP will allow ready access across all campuses to numerous additional IT resources. For example, CMC programmers are working with the libraries to enable seven-college logon of library workstations using their home campus credentials. As lead college and host of the LDAP service, ITS has built it by industry standards with redundancy and appropriate power backup.

5.6. Recommendation: Take advantage of management economies of scale in both academic and administrative areas
5.6.1. ITS has entered into cooperative agreements with the other Claremont Colleges Dell workstations.
5.6.2. ITS has entered into cooperative agreements with the other Claremont Colleges on EMS Calendar to replace CMC-only Event Center.
5.6.3. ITS has entered into cooperative agreements with the other Claremont Colleges on Help Desk software Footprints to replace CMC-only HEAT.
5.6.4. ITS has entered into cooperative agreements with the other Claremont Colleges on Virtualization software.

5.7. Recommendation: Work to raise restricted funds and endowments to secure the ongoing information technology needs and career enhancements for our students.
5.7.1. The departments now merged as Information Technology Services have been very successful. The most notable grants include: Ryal Poppa alumnus gift, 2008: $250,000 to create a student lab in Phillips Hall; Fletcher Jones Foundation, 2004-2006: $500,000 over three years to establish a Peer to Peer technology Training Program benefiting students at CMC; Berger Foundation, March 2005: $45,350 to fund technological improvements in McKenna Auditorium; Ryal Poppa alumnus gift, 2003: $100,000 to establish a state of the art wireless network at CMC; Andrew W. Mellon, 2001-2004: $665,000 over three years to support a "Sharing Our Strengths" Faculty Fluency Initiative linking support across The Claremont Colleges; The Atlantic Philanthropies, 2001-2004: $1,300,000 over three years to launch a Fluency in Information Technology Program at Claremont McKenna College.
5.7.2. Worked to establish and maintain an Information Technology Advisory Board to provide important support to the College's academic computing initiatives through restricted annual gifts. Organize, chaperone, and participate in an annual Silicon

Valley Networking Trip to introduce students to Technology leaders to assist them in their careers.[4] Help in the revivification of the San Jose Alumni Chapter by co-sponsoring events. Identify potential contributors to solicit participation and contributions for ITAB.

5.8. Recommendation: Continue to monitor progress on IT strategic planning and benchmarking progress using appropriate standards.
5.8.1. We have worked diligently to ensure that the IT Strategic Plan serves as a touchstone and remains a living document for the department.
5.8.2. ITS continues to contribute to and utilize the EDUCAUSE Core Data Service.
5.8.3. ITS consistently performs benchmarking exercises according to relevant national standards. As one example, ITS bases its information security protocols on the thirteen essential information security practices determined by the Corporate Information Security Working Group report's on the best practices and metrics team subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census (Revised January 10, 2005). We annually review relevant metrics identified in the 2002 IT Strategic plan as well as new sources. For example, we have reviewed theYahoo! Internet Life magazine and its "Most Wired" ranking scales; the EDUCAUSE Online Guide to Evaluating Information Technology on Campus, now paired with the EDUCAUSE Core Data Service (CDS) and other resources; and the Higher Education Research Institute (HERI) Senior Survey conducted by UCLA.

[4] The Alumni Report submitted to the Information Technology Sub-Committee noted, "If we are to create leaders in technology, we believe one can focus on three positions: the Chief Information Officer, the Chief Technology Officer and the Technology Entrepreneur." The alumni report adds, "We believe a student of Information Technology should have the opportunity to work on joint projects with the business sector, similar to Harvey Mudd's senior year project. Solving real business problems with technology is the best learning for becoming a technology leader."

VII. Future Alignment of Information Technology with our Updated College Plan

Our student surveys demonstrate that our incoming freshmen students live and breathe technology. Not only do they use technology, they want to increase their use. Some of the more common applications that most of our students use include:

- Facebook, MySpace
- Podcasting
- Cell phone text messaging
- Wiki (professional and amateurs co-developing content on the Internet)
- YouTube videos on the Internet
- Rhapsody, iTunes, BitTorrent music and movie sharing
- IPTV television
- SimCity; Second Life virtual reality
- Mobile computing and communicating

Despite how widespread these technologies are, most of these applications have been around for only a few years. Although planning for the long term is crucial, ITS must be sufficiently nimble to "plan" for things not yet even invented. The teaching and learning environments, even those used to leverage traditional classroom instruction, are being influenced by the fast changes in technology and their associated systems. To ensure that technology meets the current and future needs of the Claremont McKenna College community and remains competitive with peer and aspirant colleges and universities will require ongoing vigilance. We will need to recruit, retain and develop the highest quality computing and technology staff who can continuously learn and adapt to the changing technological circumstances. We must continue to configure and equip instructional classrooms as appropriate with access to appropriate digital-technology systems. With greater expectations on the part of our students, we will also need to implement savvy budget planning and funding-acquisition procedures to remain cost-effective. Faculty and staff must have ongoing professional development opportunities for acquiring skills needed to effectively integrate and to use technology-based systems. Further, given the importance of technology throughout the College enterprise, we must continue to monitor and improve our Business Continuity and Disaster Recovery planning for critical IT systems.

As we move forward, we intend to continue paying close attention to past initiatives in response to the 2002 Strategic Plan, and in a future document to be constructed over AY 2009-10, we will develop expected goals and attendant initiatives to be undertaken over the next five years to enable the organization to move forward toward its desired "future state" in accordance with the guiding principles. This document will be aligned with the Claremont McKenna College Board of Trustees 2009-10 Strategic Planning Framework.

APPENDIX: CHARGE TO THE COMMITTEE ON INFORMATION TECHNOLOGY (from the 2002 Strategic Planning Exercise)

Basic Objective: Develop a strategy for positioning Claremont McKenna as a technology leader in higher education. The Committee will also seek to develop metrics to measure the attainment of its strategic objectives.

Overview of Process

To establish its strategy, the Committee will need to:

1. Establish where we are today.
- Evaluate the environment to answer the question "Where are we now?"

2. Determine where we want to be in the future.
- Develop the strategy and vision to answer the question "Where do we want to be?"

3. Identify the gaps.
- Define the gaps between where we are now and where we want to be in the future.

4. Establish the steps needed to create the environment we want for IT.
- Develop the plan to answer the question "How will we get there?"

Areas to be addressed

The strategy for information technology must include:

1. Evaluation of the appropriate organizational model for information technology at CMC.
2. Developing a plan that supports the mission of the college.
- Careful attention to the unique mission of the college must be employed in order for the plan to meet the priorities of the institution.

3. Assessing long-term opportunities for introducing more effective instructional technologies.
4. Aligning technology with the other institutional entities.
- Information Technology is an integral part of every academic department and administrative office. The planning process must include and be a part of other areas of the strategic plan.

5. Building alliances with students, faculty and staff.
- Key individuals within the student body, faculty and staff must understand the importance of the information technology initiative and take ownership of it.

6. Ensuring that CMC has a competitive edge in the market place.
- Technology-enhanced education will be required in higher education in the years to come. CMC must position itself to be a leader in this area.

7. Disseminating knowledge about technology needs and constraints.

- As part of the planning process, it is important to inform the CMC community about current achievements, operations, and constraints of information technology at CMC.

8. Projecting needed financial support.

- Deployment of IT will be a critical success factor for CMC. It is expensive and, therefore, must be made a part of the yearly operational budget.

9. Establishing CMC as the Information Technology leader within Claremont.

- In order for CMC to take advantage of the intercollegiate cooperation of The Claremont Colleges, CMC must establish itself as the recognized leader in IT. In this role, CMC can establish the importance of technology in higher education and shape the services needed to support the mission of CMC.