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GUSTAVUS ADOLPHUS COLLEGE

Academic Technology Committee
Report to the Provost's Office
Proposal for Automatic Replacement Cycle of Academic Technology Equipment
April 12, 2011

Executive Summary
A subcommittee of the Academic Technology Committee (ATC) has studied the current status of faculty needs and best practices of peer institutions with respect to personal computing technology for the professional work (i.e., teaching, research, and service activities) of Gustavus faculty. Based on these inputs and pricing estimates supplied by Gustavus Technology Services, the ATC recommends that the College provide resources for and adopt a three-year regular replacement cycle for faculty computers, based predominantly on the use of laptop technology. Using current estimates of component prices, we estimate the annual cost of supporting this replacement cycle to be approximately $165,000.

Introduction
In Fall 2010, the Provost's Office charged the Academic Technology Committee with offering a rationale and proposal for implementing a replacement cycle for academic hardware and/or software. The ATC formed a subgroup (known as the Allocation Subgroup, composed of Kyle Chambers, Martin Lang and Dwight Stoll) to take up this task. The Allocation Subgroup has engaged in intensive research of peer institutions, conversations with campus stakeholders and some rough budget modeling to prepare this recommendation. Details of that research will follow. This section will briefly frame the recent history and context leading to this proposal.

A regularized replacement cycle will significantly improve the current academic technology replacement system, which is primarily an ad hoc replacement method that aims to apply the scant ATC budget allocation to the most pressing equipment needs. This system appears to have been the standard since the creation of the IIAC in 1996. In this system, faculty were expected to make a request (either through the department chair or, recently, directly to the ATC) for upgraded technology when they felt the need had arisen. There has been no standard offered for appropriate "need," leaving the door open to wildly different interpretations. The replacement cycle will enhance academic technology in a number of important ways.

1. Ensure up-to-date equipment. In 2010, the ATC strove to fund all faculty computer requests to replace machines older than five years. It should go without saying that five years is at or beyond the useful life expectancy of many modern computers and other technology. Keeping a stock of equipment of this vintage (and older--as of 2009, several faculty were still working from computers that were 7 and 8 years old) leads to problems with network security, usability, maintenance, and critical software updates. They are also more prone to catastrophic failure, leading to enormous challenges for the faculty and staff who suffer through them (including in some cases unrecoverable loss of data).

2. Allow more equal distribution of resources. In any given year, the ATC receives requests to

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replace one faculty member's three-year-old computer while another faculty member unwittingly slogs away at a seven-year-old machine. Other examples abound. A regular replacement cycle will eliminate this problem.

3. Uniformity in technology. Maintaining many different computer models from different "generations" of technology poses logistical concerns for faculty, staff, administrators and GTS. An acute example is the inability of some computers to open the latest default Word file type .docx, because the computers can't run the latest software. A replacement cycle will bring models and vintage of office computer into better alignment, mitigating these issues.

4. Predictable budgeting. With little or no idea of how many or what kind of equipment replacement requests are coming in any given year, it is impossible for the ATC to plan its funding priorities in ways that could lead to strategic long-term application of resources. This has a trickle-down effect of constraining departments' and programs' ability to plan effectively. Each year, allocations operate purely as reactive "stop gap" exercises aimed at merely making do, "keeping the lights on" rather than keeping pace with technological evolution. Our proposal will streamline the allocation process enormously and fix a significant portion of technology costs from year to year, allowing for more accurate budgeting.

5. Restarting innovation. Increasingly, the ATC has noted that incoming equipment requests target the mere upkeep of current standards of technology (i.e. replacing office computers or upgrading currently-installed projectors) rather than the "blue skies" thinking that was encouraged during our strategic planning process. Few departments seem to consider the ways innovative new technologies could enhance teaching or research. While this problem has complex causes (including GTS' staffing shortage in the area of academic technology support), it seems reasonable to conclude that departments and programs have operated for so long in the "stop gap" environment that they no longer see the ATC as a reasonable source of funding for innovative technology. With office computers removed as a variable in tech planning, both departments and the ATC will be more free to consider progressive applications of technology.

6. Appropriate utilization of ATC resources. For most of its existence, the IIAC/ATC has functioned primarily as the "allocation engine," committing enormous human capital to collect, sort, evaluate and prioritize incoming academic technology requests. The charge of the ATC, however, proposes a far wider range of responsibilities that have historically received little or no attention, sacrificed at the expense of all-consuming allocation duties. The ATC is intended to serve as the primary advocate for the faculty on all issues related to technology, including policy review and recommendation, budgetary planning, and planning and implementation of new technology initiatives. The members feel strongly that the committee be freed to do this important work, a goal made much more feasible with the implementation of a replacement cycle.

A regularized replacement cycle would solve some of these problems and significantly alleviate others. By most measures, Gustavus is falling far behind its peers in academic technology. Without both the financial resources needed to acquire materials and the human resources to research, plan and implement effective application of technology, we are faced with the undesirable prospect of falling to low tech in a high tech world. This will lead to enormous challenges in the recruitment and retention of quality students, faculty and staff.

The Allocation Subgroup undertook a survey of several peer institutions to assess best practices in technology replacement cycles. We also surveyed the faculty to determine their needs in office computer hardware and software. Summaries of the feedback are included below.

Summary of Peer Institution Models
To help us determine best practices, we contacted information technology directors at peer institutions (see Table 1) and asked them to describe their faculty computer replacement policy.

Table 1. Contacts for Peer Institution Survey

College	Contact	Title/Position
Loras College	Tom Kruse	Sr. Director Information Technology
Hamilton College	David Smallen	VP for Information Technology
St. Olaf College	Roberta Lembke	Director of Information and Instructional Technologies
Northwestern College	Susie Brooks	
Macalaster College	David Sisk	Assoc. Director for Admin., Info Tech Serv
College of Saint Benedict & Saint John's University	Roger Sorenson	Academic Tech. Project Leader, IT
St. Scholastica	Lowell Larson	Dir of Technical Services
Augustana College	Dan Drenkow	CIO
Macalaster College	Barron Koralesky	
St. Catherine University	Nancy Hendrickson	Assistant Director for Academic Computing

What is your campus procedure for replacing/updating faculty office computers?
The most frequent replacement cycles were a four-year cycle (N = 4) and a three-year cycle (N = 4); therefore, the proposed replacement cycle models presented in Section 4 compare these two time frames. However, it should be noted that respondents indicated that a three-year cycle might be more appropriate for laptops. As one director explained, "The 4th year is generally fine for desktops, but tends to become somewhat painful on the portables. Most people are pretty understanding when they know they're on the last year and when I explain that if I replace their computer early it just means I have to make someone else use their old one. Our highest-end users don't go the whole four years, we try to replace their machines every 2 years." Given that the GTS vision for campus classroom technology is an all laptop model, the three-year cycle might be more relevant to the technology vision for our campus.

Do you lease such equipment or purchase?
Seven out of the nine respondents indicated that they purchased their equipment rather than leasing it. The directors indicated that leasing programs are no longer fiscally advantageous and leasing does not give the institution to the flexibility to donate or cascade machines for other uses. For example, older faculty laptops might not be appropriate for intensive daily use but could be appropriate for a student classroom laptop bank.

Comments from the survey:
"By our calculations, the purchase costs are the same whether one leases or buys, and we appreciate the flexibility of allocating and donating equipment as we choose. We believe that purchasing requires less staff overhead to manage than leasing would."

"The OLD days of being able to leverage the 'residual value' of a notebook, computer or switch are long gone. You might as well own it since your 3 year lease cost is going to be the same as if you bought it outright. EARLY notebook programs were able to leverage a 2nd or 3rd year high residual value on a lease - that is no more."

Given this strong preference for purchasing, the models presented in Section 4 assume that

computers are <u>purchased rather than leased</u>. There is a significant benefit to purchasing in that residual value can be reclaimed through the sale of used equipment. Apple products in particular hold resale value quite well over a three year period; the ATC advocates this value be claimed at the end of each year by selling the equipment on the used computer market. Detailed cost bvenefits will be provided later in the document.

Narrative resulting from faculty survey

The ATC sought to better understand faculty computing needs for their professional work as a means of informing this recommendation. A brief survey was administered and data were gathered over about a four-week period during the month of December 2010. A total of 90 anonymous responses were received, representing roughly a 40% response rate. Questions ranged from very general considerations such as preference for Mac or PC operating systems, to more specific questions about use of specific software packages. Following is a summary of the salient findings of this survey, as they relate to our recommendations for a replacement cycle.

In response to a question about operating system (OS) preferences, 33% of respondents preferred a Mac OS, 41% a PC OS, and 26% preferred a system running both the Mac and PC operating systems (e.g., the Mac Mini). These preferences have obvious implications for the cost of a regular replacement cycle considering that the costs of these different platforms are significantly different.

A set of questions was directed toward gauging faculty interest in and needs for laptop computers for use in their teaching, scholarship, and other professional work. 81% of respondents indicated that they would prefer a laptop if cost were not a consideration in the laptop vs. desktop decision, and 90% of respondents indicated that a laptop computer would be sufficient if it was the only computer they had for their professional work. Clearly there is significant interest in laptop technology among the faculty, and equally importantly they are confident that current technology is sufficiently reliable that they are willing to use it on a routine basis. When asked about the major drivers for moving from desktop to laptop technology, 61% of respondents indicated they needed a laptop to do work during work-related travel; 70% indicated that the portability of a laptop (and thus much of their professional work) would improve their work/life balance (i.e., quality of life); and 47% indicated that using a College-owned laptop would give them access to specific software to facilitate work at home that is currently not possible given existing software licensing agreements and the predominant use of desktop computers by faculty. Some other needs emerged, including the following; laptops facilitate:

- more effective and productive faculty involvement in committee work
- more effective use of time spent on professional work at home
- use of technology-intensive pedagogies in classrooms that are not currently equipped with desktop computers and/or unique software
- more productive professional work at locations other than campus (e.g., field work (physical sciences), archival research

When considering the use of a laptop computer as a replacement for their existing desktop office computer, 69% and 47% of respondents indicated that they would need an external mouse and keyboard, respectively, for their use of the laptop to be effective. These are rather minor additional costs. However, 50% of respondents also indicated that they would need an external monitor for their use of the laptop to be effective. This clearly would be a significant additional cost component that must be considered in the development of a replacement cycle.

Finally, the faculty survey yielded some data on the scope of faculty uses of specific software programs or packages, as a means of better understanding faculty needs in terms of computing power, which also influences the cost per unit, particularly for laptop technology.

Recommendations

We present the following recommendations, informed by input from the survey of faculty needs described above, a survey of practices at other 'peer' institutions, and cost estimates from the Director of Gustavus Technology Services. As such, the estimated costs are best estimates, recognizing that the ATC committee members are not experts in instructional technology *per se*, particularly in the pricing of individual components. A list of the assumptions of the model used to estimate the cost of regular replacement cycles for faculty office computers follows.

- On a three year cycle, 33% of the total office computer stock will be replaced in any given year (~87 of 260 total faculty computers).
- When the cycle is fully implemented, the new laptop/desktop distribution will be 80% laptops, 20% desktops. This distribution is based upon the results of the survey of faculty needs.
- The distribution of Mac and PC machines is assumed to be 59% Mac and 41% PC. This distribution is based upon the results of the survey of faculty needs.
- The details of the cascading process in use by GTS are not available to the ATC, thus it is impossible for us to incorporate this factor into our model. However, simple research indicates that used computers, particularly Apple laptops and desktops, can hold significant resale value on the open market. This value should be captured and accounted for, preferably through the sale of retired computers to faculty, staff, students or outside entities. It is reasonable that $10,000+ could be reclaimed each year through the sale of the ~87 retired computers.
- Because of the high percentage of respondents indicating the need for such peripherals, our calculations assume that each laptop will be delivered with an external mouse, keyboard and monitor (though these are separated in the component breakdown below); the cost of a docking station is not considered. In other words, the model calculates the real cost of a Mac laptop at $2244 (computer plus peripherals).

Component Cost Estimates (provided by GTS except *)

Item	Cost Estimate
MacBook Pro Laptop (15")	**$1949**
PC Laptop (Lenovo t410)	**$1500**
iMac Desktop (21.5")	**$1350**
PC Desktop	**$750**
External Mouse	**$35***
External Keyboard	**$35***
LCD Monitor	**$225***

At full implementation the annual cost of a three-year replacement cycle, based on the estimates described above, is $165,146, whereas the annual cost of a four-year cycle is $123,859.

The ATC recommends that the College adopt a three-year replacement cycle for faculty computers with the laptop/desktop distribution given above, at an annual cost of about $165,000.