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Nonprofit Community Service and the Hidden Cost of Information Technology

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Will the information superhighway – like its concrete counterpart, the interstate highway system – turn out to be a good idea but too expensive to maintain properly? This paper will explore issues associated with the initial and ongoing costs of adopting information technology for nonprofit community service organizations, with particular attention to access and use of the information superhighway. Several possible explanations for the lag in adoption of internet technology will be explored. One of these will be the "null hypothesis" that resources and services currently available over the internet may still be insufficient to justify the costs involved for nonprofits. The paper will also explore the issue of long-term costs for nonprofits, by comparison with experiences in higher education. Decision-makers in business and higher education are already discovering that the initial startup costs of internet connection may only be the tip of what is beginning to look like a very large iceberg.

Introduction

Let us agree from the start that the "information superhighway" is an interesting and evocative phrase, and that some of the ideas expressed under that heading are thought-provoking while others are just plain silly. Some of those ideas, such as those related to concepts of electronic democracy and civic networks, for example, appear to have particular resonance with traditional nonprofit/third sector concerns, while others, like "movies on demand" have no obvious applicability. Let us also agree that present implementations of some of these ideas in the form of the internet has already taken a variety of interesting twists and turns which no one fully anticipated and that further surprises are almost certainly in store for us in the future. Finally, let us agree that – however the bill is to be paid, by whom and over what period of time – the costs involved in creating an electronic world are enormous. National Information Infrastructure (NII) proposals to date have adopted a fundamentally commercial posture by which those costs will ultimately be borne by information "consumers" in the form of various competition-based user charges. Therefore, a key question – perhaps *the* key question – regarding the nonprofit response to the internet, the information superhighway and NII must be: What will it cost and what can we expect to

get for the money? Behind the overwhelming enthusiasm of the past year, the answer to those questions is still anything but clear for the third sector.

He Says, She Says

This paper is the product of an unlikely personal and professional union – one which has lasted for more than 30 years. One of the co-authors of this paper is a nonprofit researcher and theorist: A "lead user", "early adopter" and unabashed advocate of the adoption of computer technology. He designed, ordered, installed and has maintained for the past 10 years a Local Area Network of approximately 25 workstations which has been hard-wired to the internet for the past three years, via a campus backbone. He is, in addition, a specialist in nonprofit financial management who is forced to admit that cost and product-value considerations are becoming more, rather than less, important for the nonprofit organization.

The other co-author is an academic administrator with primary responsibility for managing the under-funded academic budget of a major land-grant university; A consistently reluctant adopter but nonetheless power user of computer technology, whose budget spreadsheets point toward alarming and largely unanticipated increases in the costs of computing, and who is frankly skeptical of the claims of computer advocates of major cost savings from technology, and suspicious that innovative proposals consistently understate the real costs involved until after the organization is irreversibly committed.

Both authors agree that the adverse cost environment for universities and other nonprofit organizations may ultimately force them into a kind of "tail-wags-dog" posture if present trends continue: In the absence of large amounts of new funding (of which there are no present signs), major cutbacks in nontechnology spending (in controllable areas like personnel, and travel) will eventually be necessary to compensate for continued technology spending, *regardless of whether the promised efficiencies from technology are, in fact, real.*

Once the networking initiatives are undertaken in an organization, having the "latest and the greatest" often takes on such importance that all other priorities are affected. At the same time, the kind of fiscally irresponsible expectation of no limits – that we can have it all – is encouraged.

Definitions

In order to pursue this issue, it is necessary to clarify a number of terms. *Nonprofit organization*, in this paper, is used in its broadest sense. It refers to any of the several hundred thousand nonprofit corporations, incorporated in their respective states and exempted from federal corporate taxation by the

Internal Revenue Service as well as an unknown number of similar organizations not currently incorporated, recognized by the states or counted by the IRS. In public affairs discussion, nonprofit organizations have also traditionally included a broad range of public bureaux with very similar profiles as domestic "nonprofit" service providers.

This entire broad universe of nonprofit organizations is characterized by legal or ethical *non-distribution constraints* and generally falls along a continuum defined by two polar types: At one end of the continuum are *nonprofit firms,* engaged in tax-exempt production and distribution of various services, but constrained by law and custom from disseminating profits to stakeholders. Such firms may also be involved in some taxable or UBI (unrelated business income) activities, without affecting their basic nonprofit status. They may also be public funded, either through legislative appropriations (in which case, we shall call them bureaux) or through grants or service contracts. As their proportions of public revenues fall and contracts for service grow colleges and universities, social service agencies, public broadcasting stations and other nonprofit service providers are increasingly finding themselves propelled in the direction of nonprofit firms.

At the opposite end of this continuum from nonprofit firms are *commons* characterized by uncoerced participation, shared purposes, shared resources, mutuality and indigenous norms of justice. Membership associations, self-help groups, social movements, political protest movements, religious congregations, scientific and literary societies, and community foundations are just a few of the many different types of commons which organize and are recognized as nonprofits.

Community Service simply means that we are only primarily concerned with "local" nonprofit organizations operating at the community, state or regional level, and not with national or international organizations.

The term *internet* has several distinct meanings: In general, an internet is a network of networks, while *the* Internet is a particular expression of worldwide internets which arose in the wake of the Defense Department ARPANet, and encompasses hundreds of thousands of local area networks, thousands of wide area networks and a host of other difficult to describe configurations.

For nonprofit organizations, the internet remains largely an enormous dose of unproven potential. E-mail has proven that it's a marvelous communications medium: a typing telephone for those in a largely verbal culture who prefer to reflect and type rather than react and speak. It is useful also for those in different time zones, for whom even the minimal coordination of a phone-call can prove difficult. Certainly, before that statistical and word processing software are clear cases where necessary but time-consuming and error-prone tasks can be performed in a demonstrably

superior manner. Desk-top publishing and laser printers have made possible unprecedented levels of promotion and marketing of small nonprofits unable to afford more expensive alternatives. Beyond that, however, the case gets increasingly murky.

The *cost* of anything is ordinarily measured in one of two ways: *Outlays* correspond most closely to purchase prices, and represent the amount paid or "laid out" for a particular good or service. Although this is ordinarily an adequate retrospective measure for detailing costs which have already been incurred, when examining the future *opportunity costs* are a more fundamental measure of the cost of an entity or objective in terms of the alternatives given up in order to realize it (Crowell, 1976). *Hidden costs* are those which are not revealed or apparent. In the case of the opportunity costs of network technology adoption at least two distinct classes of hidden costs should be distinguished: *Overlooked costs* can easily result from excessive enthusiasm, inadequate planning, poor quality consultant information, and other sources, including deliberate attempts to understate the costs of a project. Many a networking project has doubled in cost when someone discovered that the original estimates did not include the cost of copper wiring, or routers or software.

Also, important hidden costs which are particularly important in the adoption of new technology are *discovery costs* – which cannot, in principle, be known ahead of time. After all of the hoopla over the "paperless office" (which occurred roughly between the first wave of desktop computers and the introduction of laser printers), many a nonprofit budget manager must have been chagrined at what actually happened to paper costs. Instead of being paperless, most offices have found themselves in an unprecedented deluge of paper flow, most of it well-printed and attractive, but still clearly (and costly!) paper. The laser printer was a genuinely new development, and it would have been impossible in principle to predict its cost (or any other) implications with any degree of accuracy. The full cost of laser printing in any office is not simply equipment, electricity and toner, but also the large (and increasing) quantities of paper consumed, and ultimately the additional time which employees must put into reading that additional print-output.

The hidden cost questions posed by the information superhighway should be potentially uncomfortable ones for nonprofit organizations: The key question is the opportunity cost involved: *although no one can tell you what the full cost of networking technology will be, what will you be willing to give up in order to have this resource?* The usual answer being posed in the nonprofit world is that cost reductions will, in some unspecified way, offset the costs of acquisition, maintenance and operations of network capabilities. It may also be noted that, in any case, the costs are expected to be outweighed by the benefits. This optimistic scenario is very good for

technology sales. It remains to be seen what its implications will be for nonprofit services.

The Quest for Killer Aps

Current debate over the information superhighway resembles in certain uncomfortable aspects debate in the late 1950's over the other superhighway – the interstate highway system. Clearly there will be public funding involved at some point. Just as clearly, those public funds will eventually show up in a variety of corporate bottom lines. What is less clear at the moment is what the benefits of internet connection will be for the nonprofit world.

Over the past year or two, the WWW browser Mosaic (and more recently Netscape) has been described as the first "killer app" for the internet. In computer jargon, "killer aps" or "killer" applications are software or applications which is what Steve Jobs used to call "insanely great."   For writers, word processing has clearly proven to be such a killer app: Does anyone know anyone who, after a fair trial, has forsaken their word processor and returned to a manual typewriter?   If so, that person is certainly an exception. Word processing has clearly established itself as one of the most profound innovations in the history of writing. Postscript, spreadsheets, and desktop publishing software are other obvious killer apps.

The important question is whether web browsers, or any other network application yet developed (including e-mail, FTP (file transfer protocol) software, remote access, and others) truly constitutes this kind of intuitive, sensible solution to real problems for nonprofit organizations. The entertainment value of "cruising the internet" with Mosaic or Netscape is clear. Likewise, the *potential* for faster and greater access to certain types of information is clear – but is dependent upon greater quantities of such information actually becoming available.

In higher education the question is somewhat clearer: The case for email is much stronger, for example, for research-oriented faculty who are able to keep in touch with others in their research specialty anywhere in the world, than it is for those faculty whose only orientation is to the classroom and their students. On-line or electronic publication is also opening up interesting new possibilities for faculty hard pressed to publish. For administrators, already bombarded with information from many directions, the cost of email access may far outweigh any possible benefits; to reach an administrator, phone and leave a voice mail message, or send a fax.

In a similar vein, it is not at all clear exactly what benefits may accrue to a nonprofit community service from internet access. The immediate question of greatest concern here is whether those benefits will outweigh the opportunity costs of that access. Raising this question should not be taken as some type of blanket opposition. It does however raise an obvious, and potentially painful, issue which nonprofit boards, executive and staff members can ill afford to ignore.

A Tragedy of the Commons?

A second, related, question is whether the current stampede to internet access, even by those who have no obvious or socially desirable reason to use it will, in the end create the kinds of enormous traffic jams which make freeway travel frustrating and counterproductive at certain times of the day and year. To ignore this question is surely to risk a potential "tragedy of the commons." The biologist Garrett Hardin used this phrase in the 1960's to highlight environmental problems of overutilization: Like the medieval common pastures whose grass is supposedly killed when too many farmers graze too many sheep there, resources which are perceived as free to everyone can under certain circumstances be overutilized, and in the process, destroyed.

The Technology Cost Profile

The absence of detailed cost studies of nonprofit technology adoption makes fertile ground for speculation. It is our view that it may be desirable for nonprofit managers to think of technology costs as distinct from other capital or equipment costs. Technology costs may appear initially to resemble the cost of land, buildings, or equipment, with the major cost in the initial purchase, with minor or incidental later costs associated with maintenance, periodic repair and eventual replacement. In fact, however, technology costs may behave more like personnel costs: Maintenance and repair costs may be sufficiently high, and replacement sufficiently frequent that they may be treated, for all intents and purposes, as consistent recurring costs. Everyone who has migrated from an original IBM-PC or "Trash 80" to a 286 and then to a 486, or from a MacPlus to a IIci and then to a PowerPC has followed this cost profile closely. The same is true of software use.

An "Iron Law" of Nonprofit Technology Adoption?

Nonprofit organizations have been struggling – not very successfully – to catch up and then to keep up with the rate of technology adoption in business and higher education – two generally acknowledged leaders in this area. In this milieu, the outlay costs of equipment acquisition have appeared to act as the only major constraint upon adoption. Longer-term consideration of the hidden costs of training, maintenance, up-grading and other costs have not always been carefully considered. It is extremely difficult to make reasonable policy in this context, because of the many unknowns. Employees using their computers to play games or entertain themselves on the job are ordinarily assumed to be the exception and not the rule. Nonprofit computer use is expected to allow conventional work to be done more quickly and easily, and the same number of workers to do more or fewer workers will be necessary to do the same work.

Despite the dramatic movement to revenue-metered community service delivery in the past two decades, many nonprofit community services still operate in a relatively fixed-budget environment. Decision-makers assume they will have a fixed (if unknown) amount to spend in any given fiscal period and operate by adjusting their expenditures to that amount. As one example of this, the United Way in most communities, for example, still allocates on fixed-budget assumptions. Public purchase of service contracts also often include fixed ceiling as well as contracted fee rates.

At the same time, there are real and severe limitations on the ability of administrators in many settings to dramatically increase revenues or decrease costs. An administrator with most funds committed to full-time salaries, for example, may be able to adjust spending in any significant way only by laying off employees. Yet, in a fixed budget environment, it is a certainty that escalating costs in one area – i.e., information technology– will necessitate cutbacks in other areas.

This brings us to what appears to be an "Iron Law" of technology adoption in nonprofit settings: Because most nonprofit organizations are heavily service oriented, and because their abilities to increase revenues to offset increased costs are limited, at some point the added costs of technology *must* begin to compete with other costs. Thus, technology which does not result in *bone fide* economies of scale or scope for the organization – allowing workers to perform services more efficiently, or to perform a broader scope of services in the same time – must inevitably diminish the ability of the organization to perform its primary function.

Unheralded Costs and Contributions

It is worth noting also that the analogue between higher education and other nonprofit activities is apt in a number of ways as the following three examples show. Two lessons to be learned from higher education, for example, are the tremendous importance of unheralded volunteer labor in designing, creating, and maintaining local area networks, and also in setting policy and following through on implementation. University administrations did not generally lead their institutions into the adoption of desktop computing nor the more recent enthusiasm for the internet; in many instances central administrators have been the last, and most reluctant adopters. Many centralized academic computing departments, wedded to a world of mainframes and dumb terminals, vigorously resisted the "anarchy" of PC's, LAN's and distributed processing. Although it is seldom remarked upon, the "computer revolution" in higher education was a revolution-from-below, planned and carried out by faculty, professional staff and enterprising graduate students, with important leadership from computer science, physics and engineering, but also plenty of contributions as well from the English, Social Work and Education departments and others across the campus.

The initial waves of this revolution were financed largely out of departmental funds, external grants and the unsupported volunteer labor of this cadre of unheralded faculty volunteers. Only later did the official budget process come into play. One of the challenges potentially facing many campuses today is the high-tech version of volunteer burnout. After years of the kind of tinkering which originally set up and has maintained these networks, at least some of these volunteers may be getting bored and frustrated with the manner in which their units have come to depend on their expertise and labor without sufficiently acknowledging or rewarding their efforts. How can units be expected to acknowledge or reward what, in many instances, they don't even recognize or understand? Any loss of these volunteers, however, may create a "technology gap" leaving units vulnerable to even such simple malfunctions as a faulty toner cartridge in a printer or to unanticipated staff support demands to replace volunteers with a paid position.

Where they continue to function, these volunteers may also create a kind of alternative decision-making structure, capable of either supplanting or subverting the official structure. On many campuses in the past year, for example, many directors of computing must have had to scramble to reassert their authority after *ad hoc* committees of faculty and/or staff began designing or creating their own institution-level World Wide Web home pages. Central coordination was needed over diverse departmental, college and program efforts.

The volunteer phenomenon in campus networking has had several other major impacts, both salutary and undesirable from a cost-management standpoint. On the positive side, this independent can-do spirit – closely identified with The American Way for many of us in the third sector – has resulted in donations of literally thousands of hours of volunteer labor every year from faculty and staff members who design, plan, implement and maintain local computer systems while holding up their regular positions (or, at least attempting to, in some cases).

This has also resulted in the growth of a substantial barter system on many campuses, much like the military: "I'll trade you three memory chips for that modem card", etc. This barter system probably makes more effective use of much equipment, wiring, etc. than would otherwise be the case. At times, it also creates nightmares for those administrators concerned with inventory control and protection of institutional property.

The less desirable aspect of the volunteer labor phenomenon has been that these same people have – in the course of those volunteer activities – frequently have to make a variety of incidental purchases of everything from SCSI terminators and cabling of all sorts to network software upgrades. In many cases this has left the door open to administrators with budget authority to be less than careful in monitoring these activities and/or lead

users to be less than completely candid in presenting their requests. When this occurred, *de facto* spending authority over major portions of already tight budgets can in-effect be transferred to the lead users. Since the enthusiasm of these volunteers will, presumably, be translated into computer-related purchases, and not books for the library, conference travel or even other equipment purchases (videotape equipment, for example), a unit's discretionary spending can be (and has been) markedly skewed in this rather simple manner.

The Cost of Underestimating Costs

At the institutional level, the impact of understating the true costs of technology, whether done intentionally or unintentionally can be devastating. In one case we are aware of, a decision to introduce a new system of course scheduling software was made and publicly announced on the basis of a price estimate for the software ($00,000).

Only after it had been announced and received widespread favorable comment from students and faculty was it revealed/learned that the software would also require a dedicated server on which to run ($400,000), workstations with which to access the system (another $400,000), full-time personnel to get the system up and keep it running (at least $80,000), and additional personnel not fully dedicated to the project but spending substantial amounts of time with it (another $80,000), as well as temporary personnel to bring the program up ($110,000 for the first year) and the on-going cost of consultants. Thus, what looked like a software bargain, actually wound up costing the organization over a million dollars, including nearly $200,000 in on-going personnel commitments.

None of these costs were part of the original estimate, and no special or dedicated funds were available for this purpose. As a result, decision-makers were faced with the classic rock-and-hard-place choice of simply absorbing this amount in the on-going operating budget or face a hostile public reaction to the apparent reversal of a popular, and seemingly sensible decision. Unfortunately, absorbing this cost could only be done by delaying or denying other worthwhile objectives.

A second, and similar, example involved a board-of-trustees initiative to create electronically equipped classrooms. These classrooms were to contain network links, interactive video capabilities, and a variety of other high-tech features. Unfortunately, because it was seemingly a capital improvement project, the RFP left no place for staffing to implement the program. It was apparently assumed, without sufficient investigation either that all of the necessary hardware and software was self-operating, or that classroom instructors would operate it. There was no indication that additional software would be required to implement the program. There was no indication that

classroom renovations in addition to those needed and paid for by the project would be required.

The larger the organization, of course, the larger its ability to absorb such problems. In the case of a small nonprofit community service, even an oversight of this type of $5,000 could be catastrophic. Yet the problem remains, regardless of the scale at which it is acted out.

Another difficulty in this area is that people are often far harder to change than hardware. Thus, even well-planned central actions may have unanticipated implications. When a central budget and financial reporting system on one campus was announced several years ago, for example, it was indicated that only "IBM-compatible" (at that time, MS-DOS) systems would be able to access it. In the meantime, Windows and the Apple compatibility thrust came alone. This meant that by the time the system was actually up, only a minority of users were accessing it from DOS, and that Macintosh users also had no difficulty accessing it. Yet a number of Macintosh oriented departments have been slow to adopt and use the system because of the lingering impression that it is not accessible to them, and at least one Macintosh program has installed a dedicated Windows system for the sole purpose of accessing this system.

The Information Criterion

The growth of information-sharing on the internet has, and will continue, to raise a host of complex, difficult and in some cases, unprecedented, issues regarding the ownership, use and control of information. Although it is not the defining characteristic, the types of information nonprofit organizations possess, and what they choose to do with that information are major factors in locating them on the continuum from commercialism to mutuality. In the nonprofit world as elsewhere, *information* is a unique and complex commodity with major philosophical and legal nuances: it lacks materiality, and thus often lacks the kind of exclusivity upon which fundamental doctrines of property ownership are based. The issue of who "owns" information is often not an easy one to settle. Information can be held, sold or given away, like any commodity. However, unlike material commodities, when it is sold or given away the use of information may not as a result be lost to the original holder. Instead, there is frequently a kind of contagion effect: Now both the original holder and the recipient "know" and if they tell others, who tell others, eventually everyone will know! Even when information is given material form, as in printed pages or electronic data files, its lack of exclusivity is not necessarily lost.

Certain types of information are, inherently *public goods,* in the dual economic and political sense that they are indivisible and irretrievably "in" the public domain. Public information *may* be sold once, but from that point on it uncontrollably enters the public domain: News of Paul Revere's ride,

the discovery of the Americas and that a human actually walked on the moon are such cases. Other types of information are inherently saleable *private goods*, often as much because of immediacy and novelty as exclusivity: Minute-by-minute stock quotations from a month ago have very little market value in any information market. Although they may be quite valuable to a prosecutor seeking evidence of illegal manipulations or to a historian, such secondary value is quite limited.

The Buttermilk Theory of Information

In a well-known definition in economic theory, Ronald Coase (1952) once described firms as "islands of conscious coordination floating in a sea of market relations like lumps in buttermilk." In using this metaphor, Coase was attempting to transcend a rather obvious and embarrassing gap in the logic of microeconomic theory: If the world is made up of uncoordinated aggregates of competing producers and consumers operating along price vectors, how is the coordinated activity of complex economic organizations like factories and corporations to be explained as anything other than economic irrationalities? The buttermilk analogy, of course, describes far more than it explains, but it has proven useful none-the-less as a metaphor of a deeper and more esoteric explanation. It is of immediate interest here because it is also, indirectly, a factor in rationalizing the notion of nonprofit organizations as a rather peculiar species of firm.

What binds the "lumps" (whether commercial firms or nonprofit organizations) and sets them apart from their suppliers and competitors is, of course, not a physical or chemical process, as in the case of real buttermilk, but the social process which Coase called "coordination." The term coordination also happens to be a fashionable buzz-word in nonprofit circles. The term coordination became popular among neo-conservative nonprofit theorists in part because the earlier term used by the institutional economists – cooperation – had acquired a kind of leftist, socialist connotation for many of them. So, coordination filled the void.

We wish to suggest here that it is, in fact, information which binds the various lumps of organization together in market firms and nonprofit organizations. Information, in the context of coordination may be a <u>factor of production</u> – raw material, as it were, in the production of goods and services or <u>products</u>. A key example of information as a factor is the technology (or "know-how") which defines and makes sense of production processes: You may have all the raw materials for mixing auto paint which will stick to metal and remain bright through various weather conditions, but information on how to mix them properly is the key ingredient without which the raw materials are useless. In the context of the modern economy, information may also be a commodity in itself. How else can we better describe modern banking based as it is on electronic funds transfer? Indeed, the major

question hovering over the many different discussions of the information superhighway concepts today is how, and in what forms, information will be marketed and sold electronically.

Coase's use of coordination in the buttermilk analogy, unlike some contemporary uses in the nonprofit sector, points to an explicitly market context and meaning. In this context, coordination might thus be defined as mutually adaptive relations for purposes of shared gain. Economists are, for the most part, good Hobbesian – seeing life generally as "solitary, poor, nasty, brutish, and short." Much of the impact, if not always the intent, of nonprofit economics has been to bring this "realistic" Hobbesian view to bear on a field which has too often suffered from the opposite distortion of raging Pollyannaism.

From a nonprofit (and somewhat more optimistic) view point, it is possible to suggest that coordination and cooperation are in fact two ends of an extensive continuum of possibilities, and that it is the manner of sharing information which differentiates them: At one end of the continuum is *purely competitive coordination*, in which information-sharing is always and only based solely on demonstrable mutual advantage. At the opposite end of the same continuum is *pure cooperation*, in which mutual advantage is not an issue and unreserved sharing of information is always and only based on full trust and mutuality and the absence of calculated advantage.

Both ends of this continuum are, of course, ideal types. The calculated lumps in Coase's buttermilk correspond closely with the perspective of microeconomics as it has come to be applied to the nonprofit sector, and the mushy lumps of trust at the other end of the continuum correspond just as closely with the perspective outlined in the theory of the commons. For most existing nonprofit organizations, reality is generally to be found somewhere along the continuum, with different organizations placing themselves at different points through their information handling practices.

Revenue, Cost & Balanced Centers

One way to begin to think about the problems of controlling the costs of information technology in nonprofit settings would be to begin to apply conventional cost analysis frameworks. Conventional models of cost accounting and cost analysis rely heavily upon the idea of centers, which in the nonprofit world corresponds to some degree with the accounting concept of funds. For purposes of "constructing" or determining costs, these centers are the magnets to which are attached relevant or appropriate costs, and as appropriate, revenues. As a further refinement of the basic concept, cost centers are those in which the total costs attached to the center exceed attached revenues. In the nonprofit setting, service programs not funded by fees or user charges operate as cost centers. Conversely, revenue centers are those in which a surplus remains after costs are subtracted from revenues. In

the nonprofit organization, fund-raising operations are always intended to be revenue centers. In the contemporary non-profit organizations some centers are designated by a third classification which we are calling balance (or break-even) centers. These are centers which are sometimes described as having to carry their own weight: to generate enough revenues to offset their costs. Thus, many colleges and universities have moved to designating a variety of revenue, cost and balanced centers. Dormitories, book stores, cafeterias and recreational facilities of various types, from bowling alleys to concert programs may be targeted as revenue centers. A host of additional activities, from continuing education to swimming pools and tennis courts may be expected to carry their own weight and generate revenues sufficient to offset their costs.

Information in the Third Sector: A Modular View

Any of these centers can exist as modular subsets of the same or other centers. Thus, in most major universities the entire athletic program may be a break-even center, while the revenue sports – football and basketball are treated as revenue centers, which must generate enough to cover not only their own costs but also those of the "non-revenue" sports, which function as cost-centers. Indeed, the entire third sector can be seen from this vantage point as a kind of enormous and complex balanced "superfund" of hierarchically clustered networks of cost, revenue and balanced funds.

The specific questions which this raises for any given nonprofit organization (itself, legally a balanced center) is whether it can identify its major information cost centers and whether it possesses any real or potential revenue centers which can be used to offset those costs.

Expenses and Recoveries

A fundamental consideration in the issue of assessing the costs of technology for nonprofit organizations is the ability of the particular nonprofit to recover costs associated with technology adoption. If the particular nonprofit organization is partially or fully revenue-based, it may be possible to pass the costs of technology adoption along to consumers of services in the form of higher fees or charges. If the organization is not revenue based, or if its ability to raise or adjust fees is severely limited (as in the case of many membership organizations or third-party contracts), its cost-recovery ability may be severely limited.

Part of this is an issue of accounting; Nonprofit organizations do not ordinarily reconstruct the "cost of doing business" as a charge against gross revenues. An exception to this, perhaps, may be those "revenue centers" which are expected to carry their own weight and particularly those liable for unrelated business income taxes.

As a result, the costs of technology are almost always "sunk costs" – outlays from existing or anticipated revenues for which there will be no direct or

realizable offsets in increased revenues. Raising tuitions for students, or raising fees for clients, (or, at least, decreasing real marginal surpluses) may be a necessary step to finance

One-time or Recurring Costs?

It is tempting to see the costs of technology adoption as one-time capital purchases: Decide what you need, get the best price and buy it! Simple. Over the past decade, many nonprofit organizations have pursued exactly this strategy: Requesting "one-time" grants or budget allocations from funding authorities, or enacting one-time fee increases.

Unfortunately, for a host of reasons, it is becoming increasingly clear that this approach may not be sufficient. Technology costs appear to function a good deal more like such recurring costs as personnel than like the one-time cost of single purchases. First of all, it is nearly impossible under many circumstances to fully anticipate all of the costs associated with such purchases.

Even relatively simple purchases like desk-top computers may bring a host of possible additional costs: Are all of the necessary cables and connectors included? Is additional RAM memory needed/desired? Does the unit come with a printer or is that extra? Modem? Networking connectors?

Another rule of thumb is probably that you can never have too much software: Software also brings with it the built-in problem of the continuous incremental costs of upgrading:

Most significant of all, there is the continued technological obsolescence associated with the bone fide advancement of technology of the past decade? Who could seriously argue today, in the world of Pentium and the PowerPC that a 68000-based Macintosh or a 286 Intel machine offers a sufficient standard of performance for all but the most basic tasks?

The advent during the past decade of laser printing, first for the Macintosh and later in the Intel- world immediately rendered thousands of dot-matrix and daisy-wheel printers substandard. Likewise, somewhere on back shelves and inventory rooms are thousands of 300-, 1200-, 2400- and a growing number of 9600-baud modems, perfectly usable but replaced by newer, faster models.

The full costs of technology are often underestimated, whether intentionally or unintentionally, by those attempting to persuade administrators to invest in their proposals. The reasons for this are not at all difficult to fathom: On the one hand, the full cost of a proposal may be purposively understated out of fear or concern that

Paying For It Out of The 'Ouskeeping

The approach of many nonprofits to the problems discussed here is somewhat like that expressed in one of Peter Seller's Inspector Clouseau/Pink Panther movies. Faced in court with the question of how his wife (who is secretly a confederate of the jewel thief) is able to afford her jewels and furs on a police inspector's meagre salary, Clouseau responds feebly, "She said she saved it out of the 'ouskeeping allowance!" Many nonprofit organizations are in a similarly absurd position of having to try to finance major capital expenditures for equipment, wiring, cable, routers, drivers, and other necessities out of operating funds.

Conclusion

So where does all this lead? Will the National Information Infrastructure end up underfunded and undermaintained like the nation's "superhighways" and rail lines, or the telephone systems in the Soviet Union and third world countries?

- Will present patterns of commitment by default be extended from higher education to other nonprofit settings?
- Will uncontrolled growth of spending for information technology serve, in the long run to undermine the ability of higher education to perform its traditional mission of teaching, research and service? We cannot say with certainty that it will. However, the question is far more worthy of serious consideration than it might at first appear.
- Will both the positive and the unfortunate sides of volunteer labor which have characterized higher education eventually be found also in other nonprofit organizations? We believe that they will.

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