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The Future: Frugality and Agility

Be studious in your profession, and you will be learned. Be industrious and frugal, and you will be rich.
—Benjamin Franklin

Information technology organizations are being buffeted by several macro trends that won't likely abate soon. These trends hold significant implications for how the CIO manages both technology and funding. The forces include

- institutional budgets that will continue to be constrained, even after the national economy recovers;
- rising IT costs driven by maintenance costs, consolidating supplier power, and the breadth of technology on campus; and
- persistent questions about how to translate intuitive belief in IT's value and importance into realistic funding strategies and effective investment decisions.

These three factors conspire to create a new reality for most IT organizations. They alter the level of resources that will be available to fund technology. They change the perspective institutional leaders bring to IT decision making. Finally, they generate rising calls for accountability in IT investment performance.

Our research results confirmed that IT budgets are constrained and consumed by fixed costs. That was our hypothesis at the outset, and it has been confirmed by our qualitative and quantitative analysis. Few expect this situation to improve through any sizeable IT budget increases for the foreseeable future. Student fees, grants, and fundraising provide some relief but are expected to remain relatively small proportions of the IT budget.

Higher education appears to be adopting an interesting corollary to Nicholas Carr's assertion that "IT doesn't matter." Institutional leaders (as the CBO survey showed) continue to believe that IT does create value. Many believe their institutions can and do derive competitive advantage from technology. Instead, what many institutional leaders believe is that "large IT projects don't work." The legacy of large ERP projects appears to be an institutional leadership core with a healthy skepticism of the utility of "big bang, big cost" technology projects. This skepticism, combined with tight resources, will likely usher in a significant period of incremental improvement. Ideally, this will accompany a renewed focus on extracting value from historical IT investments.

Finally, IT organizations face greater scrutiny and calls for accountability. This is as much about technology as it is about the IT organization itself. There will be persistent calls to find ways to measure and express the return on past investments. New investment requests will inevitably undergo greater scrutiny as the

institution parcels out scarce investment capital. These are positive changes that the CIO should embrace.

None of this is to suggest that higher education's demand for technology will likely lessen. While some institutions may have lost their appetite for big technology projects, we see no evidence of a loss of commitment to IT. Institutions want more technology but want it to operate more like a utility, with understandable and predictable costs and reliable benefits. Instructional technology is still in its infancy. Faculty's interest in developing and using increasingly proficient courseware, simulations, and other technology-based teaching methods is likely to grow, not shrink. Most IT organizations, therefore, face doing more with less.

IT Cost Management

The significant managerial issue for CIOs for the foreseeable future will be cost management. The situation we face can't be handled by simply cutting budgets; this would sacrifice any future innovation and eventually threaten organizations' ability to support their core technology. Nor is this a call to pursue new technology projects with insufficient funding. Rather, we must devise a more comprehensive approach that fundamentally alters the IT organization's cost structure. To do this, IT organizations will need to embrace a multipart strategy that includes

- creating more-flexible staffing models,
- emphasizing collaboration and shared technology services,
- establishing flexible technical architectures and standards that facilitate integration, and
- focusing on smaller, quicker, more-targeted technology projects.

More-Flexible Staffing

Future staffing models need to make it easier to quickly alter the IT organization's number of staff and range of skills. IT organizations will need smaller cadres of full-time staff and a larger resource pool of contractors, consultants, and other part-time workers. This will help them shift resources more rapidly as projects start and finish and the required mix of skills changes. It will also provide more flexibility to reduce staff costs during times of extreme budget constraints.

A more blended model of full-time and part-time staff will present new challenges for IT managers. They will need new skills to effectively form teams, motivate staff, and ensure quality even when not everyone draws a paycheck from the same entity. They will need to develop greater expertise in sourcing work by proactively evaluating and selecting the best resource (internal or external) to perform a given task.

This transformation will also likely engender significant political and cultural resistance. Even if higher education never embraces the use of offshore developers, moving work from full-time to part-time or contract staff will be difficult. However, the benefits may be both lower and more-flexible cost structures.

Emphasizing Collaboration

Shared or collaborative technology services are another critical strategy to gain better control of IT costs. Institutions must rein in duplicate IT services both within a campus and between institutions. As the study confirmed, decentralized institutions spend more than half of their technology dollars outside the central IT organization. Too often, these expenditures are made without any coordination or collaboration. These institutions are missing opportunities to contain costs by leveraging purchasing power and sharing IT resources and capacity among departments.

A similar situation exists within multicampus systems. Too often, each campus duplicates its own complete set of IT services. Campuses use different administrative

software systems and maintain separate data centers. Sometimes, they duplicate efforts to develop new technology solutions. They miss opportunities to create more-flexible staffing by sharing IT personnel.

The answer need not be to centralize technology in a system office or at a single campus. Rather, systems or consortia of independent institutions can better coordinate their resources and initiatives. Campuses can provide services to one another. Multi-institutional partnerships between campuses with similar missions or within close proximity are also valid solutions. The future is ripe for the emergence of centers of excellence—or networks of trust—that provide or host commodity-type services to higher education partners.

We are beginning to see more extensive collaborations emerging through open-source initiatives. Ira Fuchs of the Mellon Foundation noted in a recent *Chronicle of Higher Education* article that "As the costs of buying or creating software have grown, even the largest universities are seeking the significant economies of scale possible through the collaborative development of IT for higher education."[1] While it's too soon to tell if open-source (or collaborative) software development will reduce IT costs, there is renewed dialogue about collaboration. Institutional leaders need to provide greater incentives and support to foster this dialogue. And, of course, key to the success of current and future collaborations will be the continued movement toward adoption of standards and practices that promote transparent interoperability and portability of software.

Flexible Architecture and Integration

Effective IT cost management will also require effective IT architectures. Specifically, institutions will need to craft their architectures and technology standards to facilitate greater "plug and play" of new technology solutions. Architectures need to be flexible to let institutions implement various products from various vendors and still be able to integrate them effectively.

Institutions will need to turn their attention to improving the integration between technology applications. These efforts will focus on both improving data migration between applications (such as the student system and the course management system) and integrating business processes that move between systems. A flexible architecture with better capabilities to integrate systems offers two benefits. First, it helps institutions extract more value from existing applications. Second, it helps them avoid becoming overly dependent on solutions from a single vendor.

This latter benefit will give institutions the option to use enterprise software vendors only for their major transactional applications and reach out to smaller, less costly vendors for point solutions. These point solutions then integrate into the core ERP application. As enterprise application integration (EAI) and extraction, transformation, and loading (ETL) technologies continue to improve, this strategy will become more realistic and widespread.

Smaller, Quicker, More-Targeted Technology

IT organizations need to embrace smaller projects that deliver benefits reasonably quickly. Most institutions will have neither the financial nor the political capital to pursue large-dollar, multiyear projects. Instead, they will seek more strategic projects that address a specific business problem. These projects will likely focus on enabling a single business process (for example, a small customer relationship management solution for continuing education) or delivering improved management information (such as a data warehouse for enrollment services).

These strategic projects will be smaller, narrower solutions than the large multiyear efforts that consumed much of the last decade. Strategic projects will also target consolidating redundancies in particular campus IT systems or services. Institutions will need to complete more of these smaller projects more frequently. This will call for an IT organization that is facile at redeploying staff from project to project and can effectively mix internal and external resources to cover the breadth of skills required.

Strategic solutions will also place a premium on speed. By their nature, they offer more-noticeable benefits to users. Therefore, users will probably want to reap these benefits as quickly as possible. In some cases, competitive markets will reward institutions that can develop and deploy a solution faster than a peer. In any case, by delivering these solutions, IT organizations can demonstrate technology's value and rebuild institutional confidence.

The Need for Agility

IT cost management will seek both to save money and to create the flexibility and agility required to secure greater IT value. Agility and adaptability have become hot topics of conversation in corporate IT circles. In fact, *CIO* recently devoted an entire issue to the topic of IT agility. These discussions go beyond agile and adaptive technology. The basic premise of agility applies to all aspects of the IT organization, including its governance, management, and finances.

What is IT agility? *CIO* defined it as "the ability to adapt quickly to changing business conditions and take advantage of rapidly emerging opportunities."[2] In addition, "IT agility has a lot to do with culture. It comes down to people rather than technology."[3] So agility means being able to react to changes we often can't anticipate.

The drivers of the corporate quest for agility seem familiar. Uncertainty about the national economy, fluctuating funding levels, changing demand for IT services, and leadership turnover are driving corporate CIOs to remake their organizations to become more agile. And that doesn't even begin to take into account the rapidity of technological change and its impact on the IT organization.

Higher education confronts many of the same factors. We are as susceptible to economic uncertainty and changes in leadership and technology as our corporate brethren. Increasingly, higher education competes in markets where speed is a competitive weapon. Schools of continuing and professional education exist in volatile and competitive markets. Institutions competing for working professionals to enter master's or undergraduate programs must often provide a one-step enrollment and registration process or risk losing the student. Researchers rely on the institution's technology to help them compete for grant funding.

In all these cases, the speed at which an institution can seize an opportunity impacts the magnitude of its success. IT organizations must be ready to deploy solutions to support these initiatives in weeks or months, not years.

So, agility places a premium on being able not only to recognize change but also to react to it quickly. In a recent interview with ECAR, John Bielec, the CIO of Drexel University, described Drexel's IT philosophy this way: "Technology itself does not create an advantage for our institution. We derive advantage from speed, our ability to move quickly to deploy a solution." For Drexel, agility has become a part of its institutional and IT organization culture.

Technological change also drives the need for agility. Few predicted and even fewer were prepared for how swiftly IT security became an issue for higher education. Institutions were left scrambling to shift resources to respond, and many are still trying to catch up.

IT organizations need to plan for uncertainty. There will continue to be unforeseen events, be they threats or opportunities, that will demand a response from IT. Only organizations with the flexibility to shift resources will be able to respond in time.

It stands to reason that the ability to be an agile organization has much to do with funding. The literature on IT agility suggests a comprehensive concept that impacts culture, technical architecture, project management methods, and governance. IT funding, defined broadly, is a driver or indicator of many of these issues. A recent *CIO* survey of corporate IT organizations identified 10 essential drivers of an agile IT organization. As the sidebar on agile practices illustrates, four of the 10 are directly driven by the organization's IT funding practices. Items 2, 6, 8, and 10 relate directly to IT funding practices incorporated in the ECAR research.

The ECAR research findings clearly show that higher education must overcome significant funding challenges to become more agile. Recall that most institutions struggle with relatively high fixed costs. We rely extensively on payroll staff and can't easily move from in-house to external resources. Increasingly, IT budgets are consumed by long-term contractual commitments to external vendors. While many smaller institutions do have strong central control and accountability over IT costs, the largest institutions often control only half (or less) of their IT costs centrally. These institutions face significant challenges influencing, aligning, and accounting for their distributed IT spending.

Conversely, institutions with more flexibility and greater use of variable costs such as contractors and consultants appear to have more success. They express greater confidence in the adequacy of IT funding, believe they attain greater levels of IT value, and derive greater competitive advantage from technology. In short, these institutions look more like the agile IT organizations described in the literature.

The Top 10 Agile Practices

1. An institution-wide standard software base
2. Central control and accountability for IT costs
3. Repeatable process for project management
4. A flexible software architecture
5. A standardized development platform
6. A fluid balance of payroll employees, contract employees, and outside consultants and outsourcers
7. A flat organizational hierarchy
8. Flexible, short-term provider contracts
9. Flexible, quickly deployable teams
10. An optimal balance of flexible versus fixed IT operating costs

Source: The Agile 100 Honoree Survey, CIO *magazine*

A Path Forward

So, how does higher education get from here to there? How do we transform our IT organizations from largely constrained organizations with fixed costs to flexible, responsive, agile enterprises? First, we must state that we cannot secure the future through agility alone. Higher education must confront its growing gap in funding for technology renewal and replacement. Part of the solution may come from changing the approach to and cost of supporting legacy technology. Gaining more benefit from existing investment dollars through more-focused investment decision making will be another part of the solution. Many institutions will also require an influx of new dollars to support the growing IT presence on campus. Going forward, institutions should adopt funding policies that recognize the growth of the campus IT "footprint," establish regular intervals for technology renewal and replacement, and provide funding to make it happen. To do less would be

to watch the sizeable investment in campus technology crumble before it delivers its maximum benefit.

The good news is that some of the same strategies that contribute to agility may also reduce the size of the maintenance problem. Creative solutions such as collaborative IT projects with other institutions, targeted use of external consultants, and technical architectures that reduce reliance on a single vendor can create more-flexible IT budgets and reduce maintenance costs.

The transformation to greater flexibility will not happen overnight. Few institutions will have the opportunity or the need to remake their IT organizations in a single radical step. Some will use a leadership change or the need to address broad, systemic performance problems as an opportunity to drastically restructure. Some of these institutions may have the need or ability to dramatically change the ratio of internal versus contracted positions, adopt new investment decision processes, or renegotiate vendor contracts all at once. They may be able to achieve agility quickly. However, these institutions need to guard against overcompensating and discarding what works in their institution merely to make a rapid change. Trading a high-fixed-cost IT budget for an eight-year, fixed-cost outsourcing contract produces great change but does little to create agility and flexibility.

Most IT organizations will transition incrementally to a more agile organization, which will require patience and persistence. We offer the following ideas for focusing efforts to gain agility and flexibility:

Reevaluate every open position. As natural turnover occurs, institutions should rethink how best to source that position. Could a contractor perform the work? Could duties be reassigned to other existing staff to create savings that can be reinvested in frontier projects that drive innovation? Are several retirements expected in the same function, possibly providing the opportunity to shift work to a third party to gain flexibility?

Negotiate new budget rules. IT leaders should work with their CBO colleagues to create IT budget policies that promote more effective management. For example, can the IT organization carry surpluses from one year to the next? Can those savings be reinvested in the IT organization? Are funding formulas in place to increase renewal and replacement funding as the institution grows? Establishing policies around these items can help to secure IT funding and preserve or enhance flexibility.

Improve IT project decision making. This and other ECAR studies have confirmed that alignment of IT priorities with institutional priorities is a key determinant of IT success. Refining IT decision-making processes by adopting standard investment review processes, incorporating objective evaluation criteria, and empowering IT advisory groups to establish investment priorities will improve both agility and IT effectiveness.

Rethink sourcing strategies. As new needs arise, the institution should consider the broadest range of sourcing options. Is the project an opportunity to work collaboratively with another institution? Should the solution be procured from the institution's ERP vendor or can it be purchased from a third party and integrated into the ERP environment? Can open-source technology be used? Which would have the better impact on one-time costs? On support costs?

Commit to total cost of ownership. The survey results show that IT organizations don't uniformly consider the cost of maintaining a technology when acquiring it. To preserve future flexibility and agility, institutions must adopt a policy to always evaluate the cost to maintain a technology once it is implemented. Only investments with one-time and recurring funding should move forward.

Evaluate the IT architecture. Consider whether your present architecture provides maximum flexibility. Can you interoperate a variety of technologies and products, or are you locked into proprietary technologies with limited providers? More-flexible architectures provide more-flexible cost containment methods.

Conclusion

IT organizations cannot achieve more-flexible, stable funding by seeking additional budget dollars alone. The economics of higher education will not support this approach. While some incremental resources will be needed, IT organizations must also restructure their costs. Nor will flexibility and agility come from cost cuts alone. Institutions need to rethink their personnel, sourcing, and project prioritization strategies. They must be open to creative solutions such as shared services and targeted outsourcing. Large institutions will also need to more tightly coordinate their decentralized IT costs.

These changes won't be easy, but the status quo holds great peril. Maintenance costs continue to stretch already constrained budgets. Without change, higher education will see a future in which only its wealthiest institutions will be able to access innovation. Or, it will see increasing technology failures as institutions fail to replace aging equipment and upgrade software.

The CIO must lead this change but cannot do it alone. The institution's CBO, provost, deans, and president all have a role to play as well. They must create a leadership climate that encourages IT to innovate and experiment with new IT service delivery models. They must create a policy environment that supports financial flexibility and removes barriers to using contractors and consultants as part of the IT staffing mix. Finally, they must engage in a governance process that drives better decision making about which IT investments to make and why. If all play their part, higher education's IT organizations will be able to match their corporate counterparts in agility, flexibility, and, most importantly, value from technology.

Endnotes

1. I. Fuchs, "Needed: An 'Educore' to Aid Collaboration," *The Chronicle of Higher Education,* Sept. 24, 2004.
2. E. Prewitt, "The Agile 100," *CIO,* Aug. 15, 2004, p. 44, <http://www.cio.com/archive/081504/overview.html>.
3. Ibid., p. 45.