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Effective Practices

Success is a consequence and must not be a goal.

—Gustave Flaubert

How do you know if your IT funding practices are successful? One can argue that the ultimate outcome of effective IT funding is an institution that succeeds along three dimensions:

- ◆ it realizes substantial value from its technology investments,
- ◆ it provides sufficient funding to maintain critical technology operations at a reliable level of performance, and
- ◆ it has the resources required to implement its stated technology strategy.

Many institutions responding to our survey believe they're achieving some or all of these outcomes. But what separates those that do well from those that don't? Is there a set of optimal funding practices that contribute to IT success?

Analytical Framework

To answer this question, we first developed hypotheses about the possible elements of effective IT financial management. We identified four categories of institutional practices, and within each category we identified a corresponding set of organizational characteristics and management practices.

- ◆ *Organization structure.* Within this category we looked at institutional factors such as the CIO's reporting relationship and role

Key Findings

- ◆ Institutions that align IT spending with institutional priorities attain more value from technology.
- ◆ Financial flexibility is critical to maintaining reliable IT operations and helps to foster technology innovation.
- ◆ Institutions with sufficient resources to fund innovation are more likely to meet their strategic technology objectives.

in the budget process, and the breadth of functions under the CIO's control. We also asked respondents about structural issues within the IT organization, such as the presence and role of advisory committees and whether there is a full-time financial manager within IT.

- ◆ *Management processes.* This category focused on IT budget development and distribution. We asked respondents to describe the degree of structure, transparency, and alignment they achieved through the processes used to establish the IT budget and make IT investment decisions.
- ◆ *Funding practices.* In this category we looked first at the impact of budget size on outcomes. We then examined the

degree of flexibility within the IT budget and the impact of funding sources such as student fees and chargebacks. Finally, we considered how varying practices to allocate maintenance and renewal funding and the treatment of budget surplus and reserves affect outcomes.

- ◆ *Technology identity and currency.* Here we examined the effects of how the institution positions itself vis-à-vis technology. Is the institution attempting to be a technology leader or follower? To what extent is the institution's identity tied to technology? Has the institution made recent investments to upgrade its technology systems and infrastructure?

Finally, we examined the possibility that institution size or type could influence success. We therefore added a fifth category—*institutional type*—to look at how Carnegie classification, institution size, and control (public versus private) affect outcomes.

Achieving Success

We performed a series of regression analyses to determine which of the management, financial, and organizational practices were most important to determining success. Our analysis suggests that well-conceived budget processes, financial flexibility, and technology's centrality to institutional identity are among the most important factors in determining success.

The following subsections discuss the factors most significant in determining each dimension of IT success.

Technology Investments Create Value

We looked first at whether the institution felt it received substantial value for its IT investments. Our analysis reveals that IT budget process effectiveness and technology's importance to the institution are the two most significant factors in determining whether an

institution receives substantial value from IT. Institutions that reported the greatest success in achieving IT value have an objective budget process that creates alignment with institutional goals. Similarly, the data suggest a relationship between viewing technology as a source of competitive advantage and believing technology provides substantial value.

These relationships are not surprising. In fact, they suggest a positively reinforcing cycle. Institutions with a well-structured budget process driven by objective criteria engender trust and broad participation. This trust and participation should then make it more likely that the process will receive the information required to clearly align IT investments with institutional priorities. By placing its resources in areas of institutional importance, the institution has maximized its opportunity to receive substantial value for its investments. All that remains is the nontrivial issue of implementation.

The institutional belief that IT can create a competitive advantage may be both a cause and an effect of IT value creation. Institutions with leaders predisposed to thinking that IT creates a competitive advantage may be more likely to construct budget processes that align IT spending with institutional priorities. On the other hand, institutions that demonstrate through their budget process that they invest in institutional priorities may over time create the same feeling within the organization.

Adequate Funding to Maintain IT Operations

Second, we examined factors that seemed to relate most strongly with an institution's sense that its IT budget contained adequate funding to maintain IT operations reliably. For this criterion, flexibility and innovation appear to be the most significant factors. We found a strong relationship between institutions that feel they have the financial means and the flexibility to respond to new

user needs and those having confidence that they're adequately funded to maintain operations reliably. We see a similar relationship for those institutions that report having sufficient funding for research and for experimenting with new technology.

It stands to reason that an institution with greater budget flexibility would have greater confidence in its ability to maintain reliable IT operations. These institutions have the greatest capability to reallocate resources to respond to an unanticipated technology failure. They also have greater ability to stretch their budgets to cover the costs of maintaining new technologies. Conversely, organizations with IT budgets entirely committed to historical fixed costs have the least ability to respond to unanticipated needs. These institutions have lost the ability to stretch their existing budgets to support rising costs and maintain new or existing technology.

The strong relationship between adequate funding to maintain technology and adequate funding to innovate and respond to new user needs could suggest one of two things. Institutions with funds set aside for innovation might view these funds as a reserve to be reallocated in case of a significant technology failure. Or, it could indicate the degree to which an institution values technology. Possibly, an institution that provides sufficient funding to enable IT to experiment and innovate also values IT to such a degree that it would always provide sufficient funding to maintain technology.

Finally, alignment is a factor as well. Institutions with sufficient funding to maintain technology operations also report strong alignment between IT and institutional priorities. These institutions either have budget processes that effectively align IT priorities with institutional priorities or they rely on advisory groups to prioritize IT projects, or both. We might view both factors as complementary means to the same end—alignment. Some

institutions rely on a well-structured budget process to create and demonstrate alignment. Others appear to rely on participative IT governance through empowered advisory committees to achieve alignment. Some likely use both. Regardless of method, our results suggest the value of finding some mechanism to create alignment.

Alignment's importance to adequate funding for technology maintenance has several possible explanations:

- ◆ Institutions may be more likely to adequately fund maintenance of technologies deemed to be of high institutional value in the first place.
- ◆ IT organizations enhance their credibility when their priorities are aligned, and as such enjoy greater success when they request funding.
- ◆ Institutions with a history of IT alignment create an environment in which IT is such an intrinsic part of the campus that they accept only very low levels of risk of IT failure.

Achieving the Institution's Technology Strategy

Finally, we looked at why some institutions have sufficient funding to achieve their stated technology strategy and others do not. Once again, we see a strong relationship between financial flexibility and a well-structured budget process. We also see a strong relationship between adequate funding to achieve strategic objectives and adequate funding to experiment with new technology and respond to new user needs.

It stands to reason that institutions with sufficient funding to innovate and the flexibility to respond to emerging needs are best positioned to achieve their strategic objectives. It speaks to the importance of an IT organization's being able to commit part of its resources to the future. If it only has sufficient resources to maintain its legacy technologies,

it won't likely be able to engage the campus on how technology could contribute to an institutional goal. Over time, the inability to invest in the future could erode the contributions technology makes in the classroom, lab, or administrative office. As a result, the IT organization's contribution becomes more tactical and less capable of delivering on a strategic objective.

As with the prior success criteria, we see a relationship between a sound budget process and sufficient funding. We found a statistically significant relationship between institutions that characterized their budget process as based on well-understood management principles and those with sufficient funding to meet strategic objectives. We also saw a positive relationship between having an IT advisory committee to help prioritize IT projects and funding success.

Just as with predictors of achieving IT value, process seems to matter. However, the findings may also suggest that it won't suffice to merely select the right strategic priorities and apply resources to them. This is something a single individual could do and therefore is not the same as a process. Rather, success may require a process that through consultation, evaluation of options, and decision criteria (some of the management principles that define an effective process) helps establish goals' legitimacy and relative priority to one another. We can surmise that institutions with more person-dependent allocation processes have valuable time and energy diverted to the ongoing justification of spending decisions and the management of "squeaky wheels."

Other Important Characteristics

While the practices described above show the strongest relationship to successful IT funding outcomes, they aren't the only

beneficial ones. Most successful respondents appear to be using one or more additional practices, depending upon their specific circumstances.

In addition to the presence of an IT advisory committee, two other organizational factors seem to be predictors of successful IT funding outcomes. First, institutions with sufficient funding to meet their strategic objectives and maintain IT operations typically have a senior IT leader on the institutional budget committee. Interestingly, for the success criteria "the institution receives substantial value for its IT investments," the significant relationship is with the senior IT leader's sitting on the cabinet. To secure resources, the budget committee is apparently the important place to be. But to strive for and communicate greater levels of IT value, a position for the CIO on the cabinet is more important.

The institutional perception of technology's importance also seems to influence funding success. Our data suggest a positive relationship between institutions that view technology as part of their identity or a source of competitive advantage and successful IT funding outcomes. We found a similar relationship for institutions with strategies aimed at being early technology adopters. These factors present a chicken-or-egg conundrum: does the institutional value placed on IT drive increased funding, or does the presence of sound IT funding practices such as alignment enhance technology's credibility and importance at the institution?

Finally, the breadth of areas reporting to the CIO appears to significantly correlate only with the IT organization's ability to secure sufficient funding to meet its strategic technology objectives. We found a positive relationship between institutions where instructional technology reports to the senior IT leader and the adequacy of funding to meet strategic objectives.

Funding Flexibility and Institution Size

As noted earlier, budget flexibility seems critical to a successful IT organization. When we looked at where the greatest flexibility occurred, we found some interesting relationships with institution size.

We asked respondents to estimate what percentage of their IT budget is committed to personnel costs, contractual commitments, or other costs not easily reallocated within a fiscal year.¹ If we look at mean responses by Carnegie class, we see that AA and BA institutions reported greater budget flexibility than that reported by MA and doctoral institutions (see Table 5-1).

Carnegie class appears to actually serve as a proxy for size. As Chapter 6 discusses in detail, respondents from smaller institutions report greater flexibility than larger institutions enjoy. Figure 5-1 shows that institutions with

smaller central IT budgets reported greater budget flexibility (smaller fixed costs).

We didn't expect smaller institutions to report greater flexibility. The data don't let us conclusively explain why they do. One explanation may be that hardware and software purchases consume a greater percentage of a small IT organization's budget, and since the timing of purchases can often be changed, the budget is more flexible. Or, small IT organizations may use students, contractors, and consultants as a more integral part of their staffing mix.

These data seem to reinforce the notion that a larger budget in and of itself doesn't determine successful IT funding outcomes. Rather, it seems more significant to have a budget that allocates resources to pursue innovation and provides some discretion to shift resources as priorities change.

Table 5-1. Percentage of the IT Budget Fixed or Not Easily Reallocated (N = 433)

| Carnegie Class | Mean Percentage Fixed | Number | Standard Deviation |
|----------------|-----------------------|--------|--------------------|
| AA | 69.3% | 80 | 1.967 |
| BA | 70.6% | 89 | 1.480 |
| MA | 74.8% | 142 | 1.708 |
| DR | 78.7% | 95 | 1.298 |
| Specialized | 63.7% | 27 | 1.621 |

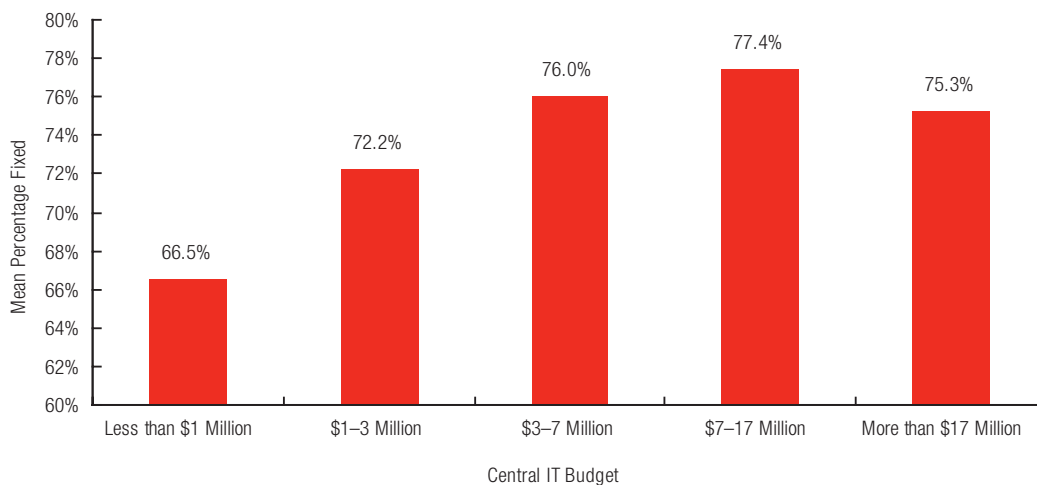


Figure 5-1. Fixed Percentage of IT Budget, by IT Budget Size (N = 461)

Where Effective Practices Occur

Our analysis of survey responses suggests a set of organizational, financial, and management practices that significantly influence IT funding success. Figure 5-2 identifies each characteristic and the percentage of survey respondents who say their institution exhibits it.

We also examined where these practices are most prevalent, by Carnegie class. As Table 5-2 indicates, they occur most frequently at associate's institutions.

There are several additional findings of interest:

- ◆ Relatively few doctoral institutions agreed that they have sufficient funding to research

Figure 5-2. Management Practices that Relate to IT Funding Success

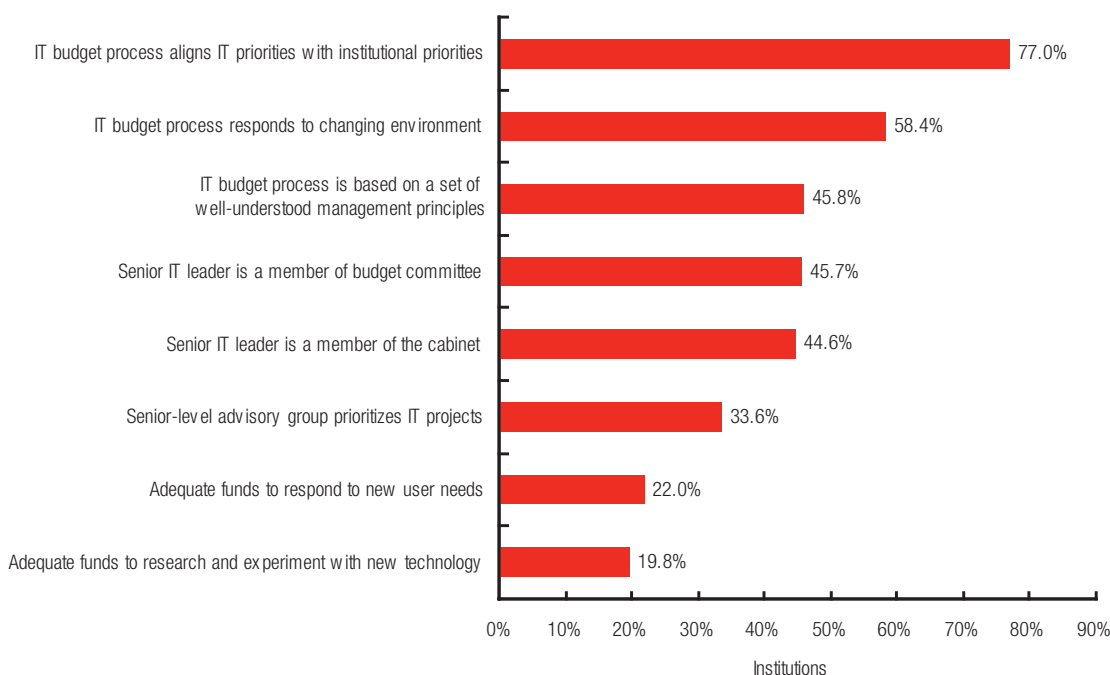


Table 5-2. Management Practices that Relate to IT Funding Success, by Carnegie Class

| Practice | AA | BA | MA | DR | Specialized |
|---|-------|-------|-------|-------|-------------|
| CIO on cabinet | 47.5% | 31.1% | 44.8% | 50.5% | 48.0% |
| CIO on budget committee | 64.2% | 35.6% | 44.4% | 32.0% | 70.4% |
| Sufficient funding for research and experimentation | 25.9% | 22.2% | 18.6% | 11.3% | 33.3% |
| Central IT budget based on understood management principles | 58.1% | 40.0% | 39.6% | 39.9% | 55.5% |
| IT budget process responds to changing environment | 65.4% | 63.4% | 55.1% | 52.1% | 55.5% |
| Budget aligns IT priorities with institutional priorities | 82.6% | 73.3% | 75.9% | 75.2% | 81.5% |
| Senior-level advisory group prioritizes projects | 39.5% | 24.4% | 33.8% | 32.7% | 37.0% |

and experiment with new technology.

- ◆ Fewer than half of all bachelor's, master's, and doctoral institutions felt their IT budget processes were based on a set of well-understood management principles.
- ◆ Relatively few institutions use advisory committees to prioritize projects.

Conclusions

So where should a CIO direct his or her energy to create the conditions for successful IT funding outcomes? The following three goals emerged as most important:

- ◆ creating alignment between IT and institutional priorities,
- ◆ effective communication, and
- ◆ flexible funding that includes some support for innovation.

The tactics for accomplishing these goals can vary. Some survey respondents use the IT budget process as the primary vehicle for alignment and communication. Others rely successfully on advisory committees and the CIO's cabinet or budget committee presence to achieve the same.

One factor that seems universal is the value of setting aside part of the IT budget to fund innovation. More than almost any other factor we examined, this emerged as a strong indicator of successful IT funding outcomes. We see several possible explanations for this strong relationship:

- ◆ These institutions can take more risks because they know they have a financial cushion to absorb mistakes. Thus, they keep their knowledge current and can experiment with new ways to shape the institution with technology.
- ◆ Institutions that can fund innovative ideas may be better able to retain and motivate productive employees. This in turn may improve their ability to create value.
- ◆ Institutions that reserve some funding for innovation could simply have happier customers and therefore a better reputation on campus. Their funding flexibility enables them to respond to the unanticipated needs of more of their customers. Therefore, they can create higher levels of IT value, meet a greater portion of their strategic objectives, and gain greater clout to influence funding decisions.

Endnote

1. Respondents were asked to estimate the fixed portion of their budget to the nearest 10 percent. To facilitate the analysis, it was assumed that there was normal distribution of responses within deciles. For example, a mean response of 1.5 was imputed to be 15 percent. It is possible that the distribution within deciles could be skewed. While this may introduce some imprecision to the analysis, we believe that it does not fundamentally alter the conclusions. This methodological decision impacts the data in Tables 5-1 and 5-2, as well as those in Figures 6-4 through 6-7.