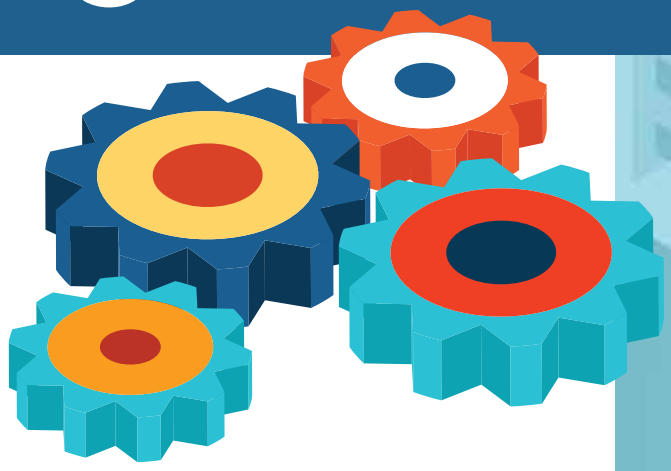
The ECONOMICS of Facilities Management

By Chris Hodges



In facilities management, when we need to address money and funding, we tend to go directly to those topics most familiar to us: capital and operating budgets, funding levels, and the monetary savings we gain from managing our resources efficiently. The day-to-day challenge of managing facilities tends to keep us locked into a tactical view of how our organizations fund facilities and how money is spent. What's missing is that we don't often address how funding decisions are made, and what the motivations are behind those decisions. Instead of framing our decisions around *finance*, maybe we should be thinking about *economics*.

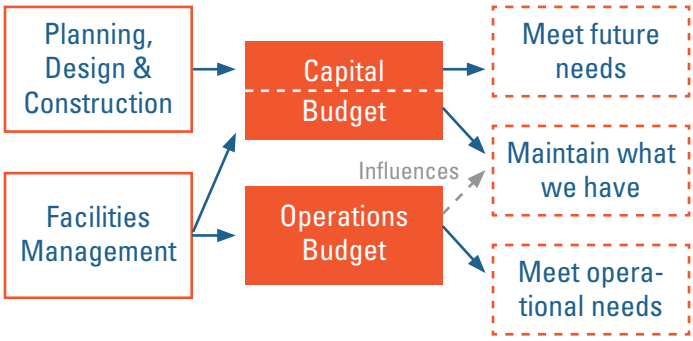
Economics, defined at the macroeconomic level, is about how we use resources and how we make decisions about those resources. In facilities management, economic decision making is influenced by a number of factors that we ignore at our own peril. Politics, favoritism, economic acumen, and human bias all influence decision making when it comes to spending money. Those biases do not disappear when we get to the organizational level.

BUYING NEW OR MAINTAINING: WHAT YOU WANT VS. WHAT YOU NEED

The most widely recognized bias we see in facilities management is the bias our organizations and stakeholders have in choosing something new over maintaining what we have. This bias is not unique to facilities management. In fact, we all experience it in everyday life. A colleague once pointed out that there's only one reason we buy a new car—*because we want one!*

We can spend a lot of time creating a business case for a new car, but maintaining what we already have is almost always more economically feasible. There are a lot of other reasons to buy a new car: dependability, fuel savings, enhanced safety, and image, just to name a few. But rarely is the reason financially compelling. In fact, we can spend a lot of time creating a business case justifying the purchase of a new car, but few of us stretch the limits of the expected service life of the car we already have. If we were more aggressive at extending service life, there would be far fewer car dealers and fewer new cars on those new car lots. The motivation to pick *new* over *maintain* is strong; however, that choice usually comes at a steeper price.

Capital and Operational Budgeting



This same type of bias in facilities management often skews our funding mechanisms away from maintenance and toward new and renovated facilities. This creates competition for funding, and the proponents of maintaining what we already have are at a disadvantage.

We know intuitively that investing in operations and maintenance increases the life of our physical assets and positively influences the amount of capital dollars needed to maintain our facilities. How do we prove it?

OPERATIONAL VS. CAPITAL BUDGETS: THE DEPRECIATION MODEL

Let's start by understanding the difference between operating and capital budgets. Operating budgets are required to maintain facilities on a day-to-day basis. This includes expenses such as utilities, routine maintenance, cleaning, trash removal, and anything that would be considered "used-up" on a day-to-day basis. Accounting principles govern what time periods are considered appropriate for operational expenses, and are largely driven by the taxing authority in any given country or region. An *accounting period* is defined by the taxing authority, and is associated with the end of the period when our taxes are due—one year for most of the world. Capital costs are those that typically outlast the accounting period. In most cases, they are expenses with a service life in excess of one year.

When considering how to levy taxes on a revenue-generating organization, the taxing authority will allow the deduction of operating expenses against revenue earned in order to determine "profits," which are taxed. From the organization's standpoint, the greater the amount of expenses that are counted against revenue, the lower the tax burden. The challenge remains how we account for an asset that lasts more than one accounting period, or more than one year. That's where depreciation comes in. Depreciation is a way of accounting for the annualized portion of expenses. In other words, depreciation is the annual cost of a capitalized asset. The figure below depicts a single capital expense (in the year 2017) as the top bucket. The small buckets represent the annual depreciable portion of that asset in any

single year (from 2017 to as long as the asset is depreciated, in this case 2021). Many organizations assign depreciation costs back to the facilities management group, thus creating a non-cash expense against the operating budget.

Most organizations have a schedule that lists dozens to hundreds of capitalized assets that are being depreciated throughout the service life of the facility the asset serves. In any single year, there would be a number of depreciable assets coming and going from the schedule, each remaining as long as the asset is being depreciated. The facilities manager may not have control, and in some cases, may not even see the depreciation schedule. However, a fundamental knowledge of how capital assets are depreciated is valuable knowledge, especially in this day of changing tax laws. Although tax law changes would not be expected to affect how capital assets are managed, there may be nuances in how they are accounted for in the capital budget cycle. This model of operating and capital costs serves as the basis for accounting practice, regardless of whether the organization is a for-profit entity or not-for-profit. At the most basic level, it is a method of annualizing capital expenditures so that they are properly accounted for in the year they are used.

THE CHALLENGE: SHOWING THE RELATIONSHIP BETWEEN OPERATIONAL AND CAPITAL BUDGETS

This is an oversimplification in many regards, but it serves as the baseline for why we need to account for operating and capital budgets separately. The challenge in facilities management is that many (if not most) organizations separate the accountability for the "buckets," even though they are closely related. The more separation we create between operational and capital budgeting, the more difficult it is to manage for the long-term life cycle of our facility assets.

This fundamental understanding of operational versus capital budgeting allows us to apply some defendable logic to the "intuition" we experience when we conclude that operational and capital budgets are related. In our bucket example, it follows that if we continually decrease our operational budget, our demand for capital renewal and replacement will increase.

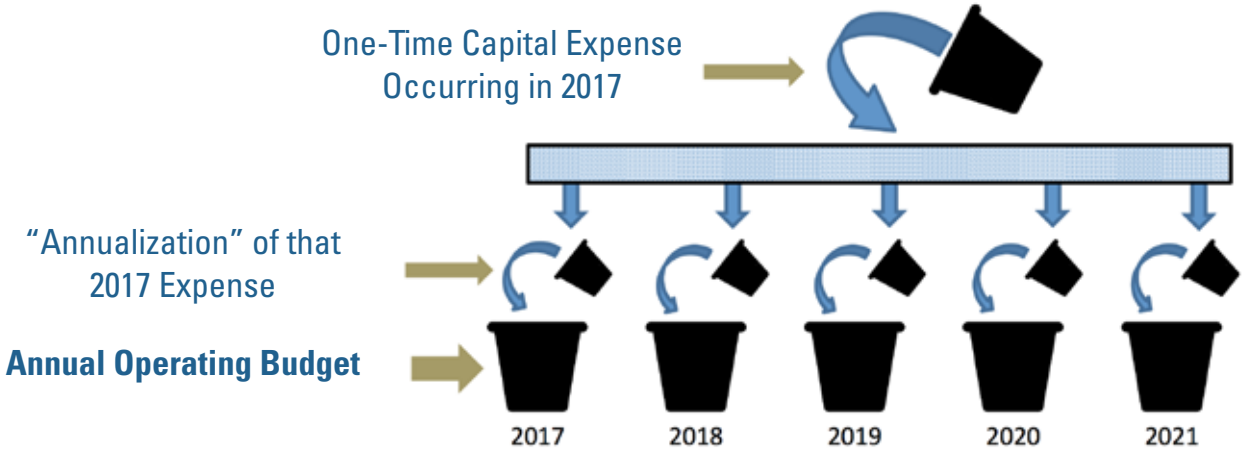
Equipment will wear out sooner, breakdowns due to lack of maintenance will occur, and we will require greater amounts of capital to maintain facilities at the same service level we desire. The opposite is also true; when we decrease capital spending, we defer major (capital) repairs and replacements. This increases the demand for operational funding to keep older equipment running. It also increases the risk of equipment failure.

Many organizations use metrics such as the Facility Condition Index (FCI) to track the overall condition of their facilities in relation to capital spending requirements. The problem is that metrics such as FCI are trend-based; it takes years of tracking to show relationships. There are few if any industry guidelines that relate operational and capital budgeting. In *The Facility Management Handbook,* (fourth edition, Roper and Payant, 2014), the authors state that "Depreciation should be kept in the range of 6 to 8 percent of the capital budget." This is one of the few citations we see in the literature about operational spending in the facilities management world.

As most facilities professionals know, proving the business case for facilities funding is easier said than done. It's a long-term process that involves lots of money spent on physical assessment, data-gathering, analysis, and, most of all—time. Capital renewal budgeting involves estimation of service life, present and future costs, and operating and maintenance requirements that are often uncertain. There is some risk in this process if we are unable to estimate these factors with a reasonable degree of certainty. Knowledge of our cognitive biases tells us that new wins out over old, and projecting savings that may not occur for several years puts us at a disadvantage if the cost savings are not immediate and easy to recognize.

A BETTER WAY TO TELL THE BUDGET STORY: FRAMING AND LOSS AVERSION

For more successful investment in facilities at the economics level, what is needed is a better way to tell the story. A fundamental understanding and recognition of our cognitive biases



helps in making a more compelling case for facilities operational investment.

Behavioral economics is the study of the psychological, social, and cognitive factors that go into economic decision making at the individual and organizational level. Sometimes it helps to back away from the day-to-day struggle over funding and (lack of) resources, and consider the ways we make decisions in our organizations, and what individual and organizational behaviors drive the economics of facilities management.

Aside from the bias we have for "new versus maintain," there are two cognitive biases that may prove helpful in understanding the facilities management mindset. The first is framing and the second is loss aversion. Although there are many more, we will focus on these two in order to improve the business case for operational and capital spending.

Behavioral economists tell us that the framing bias occurs when we highlight certain aspects of a situation over others that might not lead the observer to the same conclusion. In facilities management, the framing bias applies to how we make our business case for operational and capital spending. A good approach to budgeting is to "frame" our budget cases in terms the organization's leaders can see and understand. Budgets should be framed in terms of how well they support service delivery level, customer satisfaction, and system serviceability—all factors that we can measure if we have an appropriate performance management system in place.

For example, service levels can be shown to decrease as a direct result of decreased operational budget spending. Appearance-care and grounds-care levels of service are directly observable by our stakeholders and our leadership. A demonstration of how decreased spending results in lower satisfaction levels may

Risk No.	Risk Category	Risk Description	Nature of Risk	Initial Risk Assessment			Mitigation	Risk (After Mitigation)		
				Probability of Occurrence (P)	Impact of Event (I)	Risk Index (P x I)		Probability of Occurrence (P)	Impact of Event (I)	Risk Index (P x I)
1	**Operational Spending: Equipment Reliability**	**Deferral of Preventive Maintenance (PM) due to lack of O&M funding/staffing**	Reduction in O&M funding leads to risk of premature equipment failure, reduction of service life	3	5	15	Mitigation efforts might include increase in PM to reduce *probability* of failure for building systems with a Risk Index greater than 10.	2	5	10
2	**Operational: Facility Operations**	**Flood, weather-related event**	Temporary loss of facility impacts ability to deliver services to stakeholders	3	5	15	Mitigation efforts might include increase in capital spending to reduce *impact* of a weather-related event.	3	3	9
3	**Capital Spending: Equipment Service Life**	**Deferral of Capital Replacements due to reduction or lack of capital funding**	Reduction in capital funding leads to increase in O&M costs to maintain aged equipment and higher capital expenditure to replace	3	4	12	Mitigation efforts might include increase in PM for aging at or near its Estimated Useful Life (EUL). This strategy could reduce the probability of occurrence to an acceptable risk level.	2	4	8
4	**Operational: Reputation (FM Level)**	**Low service levels lead to low work productivity, decreased retention, unsafe conditions**	Stakeholders dissatisfied with facility and facility services, increased complaints, potential health & safety risk	3	3	9	Mitigation efforts might include increase in Operational Spending to bring service level up to acceptable level, reducing *probability* and *impact*.	2	2	4

Risk Index	
12 or Greater	Unacceptable—Requires Mitigation
9 to 11	May require further mitigation
8 or less	Acceptable level

be achievable without waiting years to prove our case. Monitoring complaints tied to facility appearance then becomes a business decision rather than an emotional one.

However, we don't ignore or leave the damaging consequences of insufficient budgets to chance. That's where loss aversion comes in. Loss aversion is the cognitive bias that says we fear losses over an equivalent gain. That doesn't mean we scare our stakeholders with visions of great losses if our budget demands are not met (e.g., catastrophic losses due to failed roofs, lack of emergency preparedness, safety violations, etc.). Rather than revert to scare tactics, facilities managers can become risk managers who identify and quantify risks to operations related to system failures and losses. Resource needs can then be understood in terms of impact to the core business. This systematic approach to risk, as in a risk register, is an organized and defendable way to address the loss aversion bias in a systematic, quantifiable, and defendable manner.

In the following example, risk is expressed in terms of Probability of Occurrence (on a scale of 1 to 5) multiplied by Impact of Event (on a scale of 1 to 5). The product, the Risk Index, provides a risk scale that can be used to determine if risk mitigation is required.

In this example of a risk register, the four risk categories shown are linked to the level of operational and capital spending. The weather-related risk and the reputational risks (Risks 2 and 4) exist regardless of funding levels, but the probability and impact of those risks can be reduced by adjusting operational or capital spending. The additional cost of the mitigation is weighed against the impact of the adverse event.

The risks associated with reductions in operational or capital spending (Risks 1 and 3) have associated mitigation efforts that might yield a significant return on investment—increased maintenance efforts may cost the organization in additional labor and funding, but the return might far outweigh the cost of a catastrophic loss of service or reduction in service life. The Risk Register is used to frame the business case for more funding or more maintenance.

Framing and loss aversion are just two of the many cognitive biases that most of us have. By recognizing these types of biases, we can improve our chances of having our budget arguments heard, discussed, and incorporated into the larger picture of how our organizations function, how we support the mission, and how economic decisions are made.

SUMMARY

The ability to recast our thinking from tactical level *financial* thinking to strategic-level *economic* thinking can help us with the long-term management of our facilities. Our chances of success in promoting our operational and capital budgets are vastly improved if we consider the financial rules that govern operational and capital spending, and the behavioral economic drivers of decision making. Recognizing these factors and how we adapt to them in composing the facilities budget does not mean guaranteed success.

However, if you ignore them, you risk a perpetual loop of reactionary budgeting and a constant struggle to obtain the monetary resources needed to keep facilities in good working order. Linking operational and capital budgets is not easy, but that doesn't mean we shouldn't strive for greater integration, more robust business analysis, and a greater recognition of perspective (framing) in making the operational and capital budgeting business case.

Chris Hodges is a principal and cofounder of Facility Engineering Associates (FEA), Fairfax, VA, and is coauthor of the book *Sustainable Facility Management: The Facility Manager's Guide to Optimizing Building Performance*. He consults with clients on facility performance management at FEA and teaches facility management courses at George Mason University and the Catholic University of America. He can be reached at *hodges@feapc.com*.