

# A Holistic View of the Total Cost of Technology

**E**nhancing staff productivity through information technology is not a new concept. School leaders understand that student information systems, grading and reporting applications, and financial management systems can generally be justified because they enhance user productivity. Imagine the costs in staff and time if computerized systems were not in place.

If computerized information systems play a valuable role in cost savings, why, in tight financial times, do we consider skipping this year's computer refreshment cycle or cutting back on computer services staff? Cuts in many budget areas have ramifications in other areas, and technology is no exception.

The dilemma here is reconciling the belief that investments in information systems save the school district both money and the labor of trying to save money by reducing those same investments. This conflict arises from a short-term view of expenditures and a specific focus on budget line items.

The decision to slide another year with those old computers and delay replacing that user support person at the high school will likely cost the district more money than it saves.

### Total Cost of Ownership

Before determining short-term budget-cutting measures, it pays to take a holistic view of all the costs of the technol-

ogy environment, how those costs relate, and how to better tune the overall efficiency of current technology. Total cost of ownership (TCO) is a concept that looks at all the costs of owning networked computers. This networked computer technology environment consists of three major cost categories: technology, direct labor, and indirect labor.

- **Technology** includes computers, servers, software, printers, networking equipment, and external application service providers.
- **Direct labor** can be calculated as the burdened labor cost of all internal and outsourced personnel whose formal job assignment includes support for technology.
- **Indirect labor** is the nonbudgeted support costs incurred outside the formal or visible technology support structure. It reflects the time that computer users spend in training or dealing with their own or others' computer system or network issues. In other words, indirect labor is overhead time required by users to obtain the value of computer applications and networks.

Case studies of large, medium, and small districts, conducted by the Consortium for School Networking (CoSN), indicate that the share of the total cost of ownership for each of these three categories is 23% for technology (amortized over useful life), 21% for direct labor, and 56% for indirect labor. For those districts in which users were actually surveyed about the amount of time they spend (versus



By Rich Kaestner

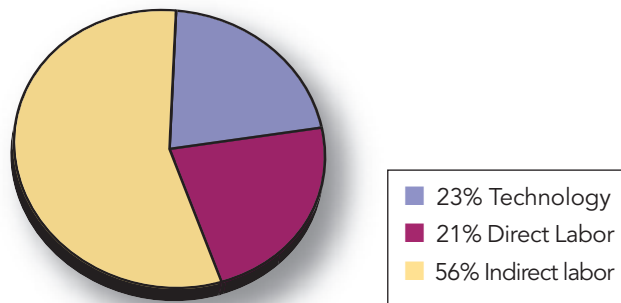
estimates from computer services), that whopping 56% of the total cost of ownership for indirect labor is actually 61%–67% of the total cost of ownership. In any case, this indirect labor time spent by users translates to somewhere between 10.5 and 13.7 hours per month per teacher and nonteaching staff member.

Although it doesn't appear as a budget line item, the time users spend participating in formal and informal technology training and dealing with system or user issues that detract from the productivity that these computer systems are supposed to bring is a real cost to the district. If we can equate personnel time savings as real dollar savings, then the overhead time spent in learning how to use the systems effectively and in dealing with system and user issues is a real cost.

### Planning for Efficiency

Recognizing that the total cost of computer technology consists of budgeted costs (technology and direct labor) and costs that never appear on the district or school budget (indirect labor), we now have a more holistic view of the total cost of ownership.

Now, looking at the earlier premise that the school or district can save money by skipping this year's replacement cycle (reducing technology costs) or not replacing an end-user support technician (reducing direct labor), we can see that the cost doesn't go away; rather, it is borne by one or both of the other cost categories, most likely by the end user (indirect labor). Think of the pie chart in Figure 1 as a total



**Figure 1.** Average total cost of ownership.

cost of ownership balloon; if you squeeze one portion of the balloon, another part gets bigger. The goal then is to strive for overall efficiencies for effective use of the computer and network infrastructure, taking into account a balance of technology, direct labor, and indirect labor costs.

Keeping technology relatively current saves time for the computer services team by reducing system integration, compatibility, and reliability issues—many of which also spill over to the end user. Providing adequate end-user support reduces the time and frustration in dealing with computer and network issues that end users are not trained to handle.

Thankfully, there is help when it comes to understanding the total cost of ownership of your networked computer environment and finding ways to improve overall efficiencies. With initial funding from the U.S. Department of Education, CoSN teamed with Gartner, Inc., several years ago to develop a free Web-based TCO tool for use by K–12 schools, districts, and related state agencies.

The CoSN-Gartner TCO tool helps educators and district personnel understand current technology and direct labor and indirect labor costs as a baseline for planning. Case study high-low values are displayed with your district or school results for evaluation purposes. From this baseline TCO assessment, you are in a position to evaluate the cost components and try some “what-if” scenarios.

Also on CoSN's Taking TCO to the Classroom Website are CoSN's eight TCO case studies, three CoSN one-to-one student laptop computing TCO case studies, plus user-submitted TCO case studies. CoSN's Taking TCO to the Classroom Web site with links to the CoSN-Gartner TCO tool can be found at [www.classroomtco.org](http://www.classroomtco.org).

Before taking out the budget-cutting knife, it is prudent to understand the real cost ramifications of budget cuts and the strategic role that technology may play in meeting school or district mission and goals. ■

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