

TCO

Managing Total Cost of Ownership

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The Total Cost of Ownership (TCO) is a term and an approach used often in the business world but one that education is yet to embrace. A typical business looks at the installation of new or proven technology with a keen eye for the total costs associated with the implementation of that technology. In education, we believe that if we can afford the computer(s), then we can afford the technology. A typical business will quickly tell you that the total cost of implementing technological items only just *begins* with the original purchase price.

The education community is different than the business community but we can adapt many of their models and learn from effective approaches. In education we address TCO but it is rarely in the area of technology. When a school transportation department purchases a new set of school buses the TCO is usually well thought through. There is the initial cost of the bus itself, but the transportation department continues by calculating the other costs associated with utilizing these new buses such as additional training of their bus drivers to learn how to use the new features of these new buses. They also factor in the need to train their technicians to keep these new buses running efficiently. The cost of purchasing and stocking new parts, the difference in gas mileage, the cost of maintenance items, and the actual replacement cost for the bus are all factored into the equation of TCO.

The technology department should follow a little closer in the footsteps of other departments when it comes to new purchases and planning for TCO. It is important to be aware of the various factors that contribute to TCO of a product. The following is a list of factors to consider when budgeting for new purchases.

Initial Hardware Purchase Price

This price will include the computer and associated peripherals that are acquired at the time of purchase. This initial price can have an effect on the other items that contribute to TCO for example if you purchase a refurbished or used computer, your maintenance costs will probably increase faster than if you were to purchase a new computer. The question to ask yourself: *Is the lower purchase price of this unit worth the added costs down the road?*

Initial Software Purchase Price

Some computers will come with software packaged with the hardware but generally this is a cost that schools deal with once the computer is in place. The principal and/or technology coordinator is faced with scrambling to find funding for the needed software to make the system useful. The question to ask yourself: *How will this computer be used and hence, what software will be needed?*

Setup and Connectivity

Some teachers are able to set up their own computers, but if not, or if you are setting up a lab, there are definite costs in time of a person to pull the computer(s) from their box and configure it for the network. TCO accounts for the possible need of additional data lines and/or hardware (i.e. hubs) if the existing technology does not accommodate a new computer system. Also, some systems may need to be reconfigured to work with the existing network such as installing a 100 Base-T network card or additional RAM to run necessary applications. The question to ask yourself: *“What steps and assistance will be necessary to get this computer up and running efficiently on our network”*

Technical Support

Schools are increasingly becoming aware of the growing need for technical support and recently are factoring this cost more accurately into the TCO of new purchases. From the cost of maintaining a technician for troubleshooting, to that technician's own professional growth; this is a very difficult item to determine an actual associated cost per computer. In addition, there is the need to consider the costs associated with replacement parts and general service equipment. The question to ask yourself: *"What are the costs of maintaining this computer including personnel?"*

Upgrades

When purchasing a computer today, it is important to determine the expected life span but also the pre-upgrade life span of the system. How long until it will be necessary to upgrade the RAM or hard drive on this machine? If you purchase a new computer with 64MB of RAM this year, you will be upgrading it to 128 MB next year to keep it a viable higher end machine. Some schools have a migration path for technology, which moves an aging machine into classrooms and areas that are less demanding on the technology, thereby avoiding the constant need for upgrades. The question to ask yourself: *"How long until I will need to upgrade this machine, if at all?"*

Staff Development

30% of your technology budget should be designated for technology staff development according to the CA Department of Education. In fact, many state and federal grants are requiring staff development ratios similar to this. It is not uncommon for the business end user to receive two to three solid weeks of training on new products prior to being expected to use it efficiently. This is not only one of the most expensive components of TCO but it is also one of the ways to get the best return on your investment. A \$1,000 computer which has an additional \$300 of staff development associated with it will be more effectively utilized than one that has no staff development component included. The question to ask yourself: *"What training will be needed by the end user to efficiently utilize this resource?"*

Replacement Cost

When a school bus reaches the end of its life expectancy, the school bus is replaced. Computers in education generally are not treated this way. Imagine if you could "replace" all of the Apple II's (or other old machines) that have been through your site with new G4 or Pentium III machines. Once in place, a computer should become an integral part of the curriculum and must be replaced rather than simply discarded. A \$1,000 computer today can probably be replaced for approximately \$1,000 in three to five years from now. The question to ask yourself: *"What will this computer cost to replace after its expected life span and how will I budget to have the required resources available at that time?"*

Although this is not an exhaustive list of all the factors to consider when calculating the TCO of a computer, it is a good starting point.

TCO is scary to the educational community, and for good reason! According to a Gartner Group study, software and hardware initial purchase price represents only 16% of the TCO of a computer. The thought of spending \$20,000 on a small computer lab of 20 computers is hard enough for our educational community to stomach when the educational dollar is stretched so thin. But if you add the TCO, then you should budget an additional 84% *above* the original purchase price of software and hardware. This would require asking the school board for \$84,000 for each computer over the next three to five years, depending on your replacement time line. This is the scary part! A 20-station computer lab's TCO is calculated at over 1.5 million dollars. Ouch! Hence, the educational

community thus far has generally chosen to look the other way and hope that all the TCO components will be covered under other budget items.

I am not suggesting that we purchase 84% less machines, but I do believe that we are beginning to see hardware-rich schools with minimal technology maintenance funds and little viable use of the computers in the curriculum. TCO is one way to identify and provide for the needed resources to make every technology dollar spent the most effective it can be.