



## A Report and Estimating Tool for K-12 School Districts

### Why Total Cost of Ownership (TCO) Matters



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# Gartner

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## Introduction

Technology is an increasingly essential K-12 resource. As budgets tighten, however, districts are coming under pressure to articulate the costs and benefits of existing and planned technology expenditures. Increasingly, educational policy makers are seeking evidence that their highly visible investments in technology are meeting educational needs and that these information technology (IT) investments are closely monitored and well-managed.

Because of these issues, adoption of total cost of ownership (TCO) and return on investment (ROI) tools to measure the cost and effectiveness of technology initiatives are becoming more common. Gartner, a leading information technology research firm, defines Total Cost of Ownership (TCO) as a comprehensive set of methodologies, models and tools to help organizations better measure and manage their IT investments.

For more than 15 years, Gartner has counseled its business community clients to consider all costs associated with computing when making management decisions about computer acquisitions, upgrades, support and administration. As enterprises have begun to address the significant and rising costs devoted to computing infrastructure, the message has gained wide acceptance among technology users.

Since the start of its K-12 TCO initiative five years ago, “Taking TCO to the Classroom” ([www.classroomtco.org](http://www.classroomtco.org)), the Consortium for School Networking (CoSN) has been widely recognized for helping school technology leaders understand how to budget to operate their growing networks of computers and other devices in a cost-effective way. CoSN has worked to develop tools and resources to help ensure that school leaders budget adequately to support their technology.

True acceptance and application of the TCO concept, however, is just emerging in the K-12 community. There are several reasons for this. Schools have been late adopters of desktop technology; however, the level of investment has increased to the point where it is clearly “on the radar”. Traditional TCO models have been complex, and school districts (and other educational institutions) have lacked the resources to use them. TCO models have also been built primarily for corporate and larger public and non-profit organizations. The metrics they have produced have not been geared to the K-12 community. Finally, since there has been no critical mass of K-12 participation in TCO initiatives, there has been little comparative data available.

In response to this need, Gartner and CoSN, with support from the North Central Regional Technology in Education Consortium (NCRTEC) operated by the North Central Regional Education Laboratory (NCREL), and the U.S. Department of Education, initiated a project to generate interest and adoption of Total Cost of Ownership concepts in the K-12 environment.



Essential to this undertaking is the simple concept of objectivity that guides this work. Therefore, the TCO methodology favors no single technology product, supplier, group of suppliers, or computing architecture, but provides organizations with a credible means of evaluating options to intelligently reduce overall technology costs.

## Objectives and Outputs of the Gartner/COSN K-12 TCO Project

The objectives of this project were to:

- Provide a simplified methodology for calculating TCO that specifically addresses the needs of the K-12 community.
- Enable K-12 institutions to calculate their own TCO based on this framework, and to help them create a baseline for future TCO comparisons.
- Highlight issues that will help schools improve the ways they manage their technology assets, adopt best practices, and simplify the management of information technology resources.

This project has two main outputs:

- A K-12 TCO White Paper Report containing:
  - Documentation outlining the methodology for calculating K-12 TCO—This documentation includes data collection rules and methodologies including specific definitions that will help a district populate a Web-based model (see below) and perform a high-level TCO analysis.
  - Results of in-depth TCO studies performed on four school districts including metrics and commentary from both TCO and K-12 technology experts.
  - Information that school districts and other educational institutions can use to help interpret issues around technology ownership costs.
  - Instructions on how to use the K-12 Web-based TCO tool
- A K-12 Web-based TCO tool:
  - The K-12 Web-based TCO Tool is an application which allows K-12 school districts and other educational institutions to calculate their own Total Cost of Ownership using the methodology developed in this project.
  - The tool produces a report which contains calculated TCO metrics based on data input by the institution. Explanations of the content and importance of each metric, along with the “high and low” from the case study districts are also provided in the report.
  - The tool is available to all public and private K-12 institutions in the United States.



The Web-based TCO Tool and all of the project's resources are available through the project's Web site, [www.classroomtco.org](http://www.classroomtco.org).

The first time an organization performs a TCO study, they will typically include some information that is incomplete or based on fairly rough estimates. One of the benefits of performing a TCO study is to find out what you don't know (asset counts, costs etc.). Over time, most organizations begin to incorporate formal tools (such as asset management) and informal tools (such as internal spreadsheets) that help to more effectively and accurately collect costs and other relevant information. Eventually the data collection process becomes less labor intensive and the data itself becomes more accurate. The best value can be obtained by performing these studies over time. In this way, the effects of actions taken from a perspective of technology, organization, and process can be shown.

It should be noted that comparison of case studies with other school districts or other educational institutions must be done with care, as many factors enter into the cost of ownership. Districts and other educational institutions have different approaches and philosophies when it comes to acquiring and supporting technology to meet the needs of their unique environment. The case study TCO numbers provide a reasonability check for your own numbers, and the case study scenarios should provide some insights into how data has been analyzed for other districts. Once your own baseline study has been completed, additional value may be achieved by running "what-if" scenarios or conducting subsequent analyses to review the results of major efforts to improve efficiency.

This document, along with the Web-based TCO Tool, is intended to help school districts and other educational institutions better understand and manage their technology environment and related costs. It is not a means for policy makers to determine the value of technology, nor to drive TCO targets as a part of technology budget reductions. School districts and other educational institutions will need to incorporate quantitative as well as qualitative evaluations, incorporating TCO evaluations as an integral part of the analytical toolset, to sustain an adequate level of technology growth in difficult economic times.



## Bringing TCO Methodologies to the K-12 Environment

In order to gain the benefits of TCO concepts and methodologies, school districts and other educational institutions should conduct routine TCO evaluations that:

**1. Provide management oversight.** Analytical tools are not the sole indicators of the success of technology initiatives, nor do they necessarily validate good management or stewardship of resources. Such analyses, however, can provide consistent quantifiable data for administrators and boards to use to understand the impact as well as the cost of technology initiatives.

There is no magic number for TCO; a low TCO is not desirable if it is accompanied by low customer satisfaction or is created through draconian measures to limit access to technology resources and services. For example, the TCO for Internet access might be low because the school system severely restricts the time that Internet service is available and limits the number of users per school. Students and faculty become frustrated because this limited access restricts the deployment of the technology to meet instructional or management goals. Conversely, a higher TCO for Internet service would be acceptable if it meant access was available to students and staff for instructional activities to leverage the learning process. In this example, higher TCO actually is more desirable when measured against school system objectives.

**2. Identify and document both direct and indirect costs.** A district cannot manage what it cannot measure. Understanding and consolidating direct and indirect costs tends to lead to lower overall spending. Alternatively, it may lead to increased efficiency in meeting goals at the same level of spending.

School districts and other educational institutions should establish an accounting system of common expenditure categories to be certain that they are consistently accounting for all costs. The organizations then must require all groups to report all costs according to that system. The TCO tool and data collection process will facilitate the discovery of the various sources of cost. Initially this is a difficult, but valuable task. As accounting processes mature, your institution or school district will find the task of collecting data to become much easier.

The K-12 TCO model contains two major cost categories: direct costs and indirect costs. Direct costs are those commonly understood and are visible. They are generally incurred by the technology support group (Formal or “official” support), or represent capital purchases (hardware, software, etc.). Indirect costs are incurred by the end user community and are generally “hidden”. Indirect costs are driven by the labor time associated with the following types of activities:

- Peer Support—The time spent by users asking questions of other users and the time spent by users responding to questions such as, “How do I change my settings to use a different printer?” or “Where is the online school directory?”



- **File and Data Management**—The time spent by users trying to free up space on local disks.
- **Downtime**—The idle time spent by users because the network, or their computer, is down.

While these costs are considered “soft”, they do, in fact, cost the district money. They also measure the value provided by the formal technology support organization. Gartner Measurement has determined that indirect costs can contribute as much as 60 percent to overall TCO.

**3. Measure and improve the effectiveness of technology initiatives.** Once total costs are understood, schools can analyze efforts and begin to measure technology effectiveness. For example, by identifying all computer applications used throughout the organization, districts can uncover duplications and inefficiencies as well as voids in the program.

"What-if" scenarios can provide insight into the relative impacts of multiple options for implementing and supporting technology initiatives. By comparing expenditures for central IT services against similar costs reported by individual departments or by investigating the fiscal impact of proposed changes in technology acquisition and support policies or procedures, school districts and other educational institutions can measure the fiscal impact of proposed changes. For example, consider the costs of centralized repair and maintenance operations as compared to the costs of grassroots efforts in individual schools or content area offices. Different scenarios can be created based on changing the ratio of centralized to local effort, or by outsourcing some or all maintenance and repair services. The district could then understand the costs of each scenario while considering potential service effects and their impact on instructional programs.

**4. Develop and document budgetary guidelines.** TCO metrics are different in K-12 education than in corporations and most other public agencies. Typically, corporate desktops are used by the same employee throughout the workday. In schools, computers in any one classroom, library or laboratory are used for a variety of software applications and by different students throughout the day. (Teachers may have to share computers as well). Client computers used by administrators and support staff will more closely follow the corporate model. It is critical that districts develop different models to measure costs for these two different kinds of desktops. Systematically conducting TCO studies enables school districts and other educational institutions to establish and document the real cost of using technology and to budget appropriately to support different user populations. Having collected ownership data and measured the effectiveness of technology initiatives across the district, the district organization charged with supporting technology can develop budget guidelines that can withstand critical review from various stakeholders.



**5. Develop the business case for new technology initiatives.** When new technologies or applications are considered, IS departments should use the TCO methodology to model and anticipate the initial and continuing costs. Districts should be realistic about the time frame used in measuring TCO by establishing a time period that reflects the maturity and stability of the technology. For example, when measuring TCO for a major student information system software initiative, spreading the initial costs over a five-year or even a seven-year period is appropriate. For assessing TCO for a technology that changes rapidly (e.g., personal digital assistants), a three-year or even two-year time frame might be a better fit. Before investing in any technology initiative, a thorough investigation that includes total costs over the expected lifetime of the technology will enable the district to make an informed decision on the cost vs. the benefits of the proposed implementation.

**6. Inform stakeholders of management practices and budgetary needs.** Routinely performing TCO evaluations of all technology programs will create a level of external-stakeholder confidence in district decision-making and enable school districts and other educational institutions to accurately communicate budgetary needs to those stakeholders. Thoroughly documented and analyzed costs will develop confidence among stakeholders that the district's IS department is a fiscally well-managed operation that is making data-driven decisions on technology programs and expenditures.

While none of these practices will guarantee funding availability, these districts will be most likely to sustain or grow budget commitments to technology through their record of accomplishment of providing effective performance for each budget dollar.

## Bottom Line

Educational institutions and agencies should routinely conduct TCO evaluations to:

- Understand the true overall spending on technology.
- Manage and assess technology investments, and initiatives in the context of organizational goals.
- Assist in developing budgetary guidelines.
- Identify and document spending for individual technology services.
- Inform stakeholders of the solid analytical management practices being followed when making funding requests.



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### Gartner

The content of this document and the Web-based TCO Tool were developed by Bill Rust, Gartner G2 K-12 specialist and Eric Stegman, Gartner Measurement TCO specialist. As a team, Eric and Bill took the complex Gartner distributed computing TCO model and adopted it to a simplified model oriented specifically to K-12 school districts and other educational institutions. Thanks also to Bill Corrington and Chip Westcott, Gartner Consulting, for their management of the project and Gartner resources.

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### Case Study Districts

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### Sponsors for Dissemination

Grateful acknowledgement is given to the companies who have provided support to CoSN for the dissemination of this effort. A full listing of sponsors is on the CoSN “Taking TCO to the Classroom” Web site: [www.classroomtco.org](http://www.classroomtco.org).



## Related Documents

Please refer to these documents (available at the [www.classroomtco.org](http://www.classroomtco.org) Web site) for additional information regarding TCO in the K-12 environment.

### ***Preparing for TCO Analysis***

Input fields required for the Web-based TCO Tool and extensions for further evaluations

### ***The Web-based TCO Tool***

A review of the Web-based TCO Tool

### ***California District Case Study***

An urban district with 140,000 students

### ***Utah District Case Study***

A suburban district with 48,000 students

### ***Minnesota District Case Study***

A rural district with 4,000 students

### ***Pennsylvania District Case Study***

A rural district with 2,500 students



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