



Modernizing Schools: Instructional Technology Economic Recovery Brief

The nation’s elementary and secondary education system is in great need of modernization through the infusion of instructional and related technologies. A major national school technology modernization initiative would provide both a short-term boost to the nation’s economic recovery and a mid-term boost to our economic competitiveness.

A technology modernization initiative will allow states and districts to modernize schools and instruction by maximizing the potential of technology to improve teaching and learning, provide on-going and sustainable professional development, and ensure that students are prepared for college and the 21st Century global economy. States and districts will have the opportunity to create 21st century classrooms by providing a technology-rich classroom environment. With leadership, on-going and sustainable professional development, high-quality tools and resources and continual use of data, teaching and learning will be transformed to engage students and increase achievement.

Benefits of this initiative are the direct and in-direct job creation and resulting economic expansion, including the hiring of instructional coaches and IT support, as well as industry jobs created through school procurement of technology access, technology hardware, software and related services.

This document provides data and costs for the following:

1. Professional Development, Instructional Technology Coaches, and Technology IT Support
2. 1:1 Programs with Technology Rich Classrooms for All Students
3. 1:1 Programs with Technology Rich Classrooms Middle and High School Students as well as technology rich classroom for Elementary School Students
4. 2:1 Programs with Technology Rich Classrooms for All Students

Assumptions:

- 49,800,000 public school students (NCES)
- Current 3.8:1 student-to-computer ratio (NCES)
- Leaves 36,694,737 students without personal computer access or rich technology classroom
- Cost estimates do not include all technology infrastructure and broadband access costs, assumed to be included in separate broadband and school construction initiatives
- 25 students per classroom/teacher

Professional Development, Implementation and Job Creation_(This is essential for successful implementation of any of the following programs.)

	1/1,000 Students	Cost	Total Cost
Instructional Technology Coaches	49,800	60,000	2,988,000,000
Technology IT Support	49,800	60,000	2,988,000,000
Jobs Created, Total Cost	99,600		5,976,000,000

Program Options:

1:1 Program with Technology Rich Classrooms for All Students



Public School Students	49,800,000
Current Computer: Student Ratio	3.8:1
Computers Needed	36,694,737
*Cost of Laptop	1,000
Total Cost of Laptop	36,694,736,842
**Cost of Laptop, PD, and Technology Rich Classroom	1,400
Total Cost of Laptop, PD, and Technology Rich Classrooms	51,372,631,579

1:1 Program with Technology Rich Classrooms for Middle and High School Students

The chart below illustrates costs for implementing 1:1 computer initiatives plus technology rich classrooms in all middle schools and high schools. The succeeding chart costs out implementing technology rich classrooms in all currently unequipped elementary school classrooms (estimated at 80%). The final chart provides a total for implementing a combined initiative in elementary, middle and high schools.

Middle & High School Public School Students	26,533,333
Current Computer: Student Ratio	3.8:1
Computers Needed	19,550,877
*Cost of laptop	1,000
Total Cost of laptop	19,550,877,193
**Cost of Laptop, PD, and Technology Rich Classrooms	1,400
Total Cost of Laptop, PD, and Technology Rich Classrooms	27,371,228,070

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Program with Technology Rich Classrooms For Elementary	School Students
Number of Elementary Classrooms (assuming 20% equipped)	744,533
Cost of Technology Rich Classroom	11,695
Total Cost for Elementary Technology Rich Classrooms	8,707,313,435

Total: 1:1 Program with Technology Rich Classrooms for Middle and High School Students and Technology Rich Classrooms for Elementary School Students	36,078,541,505
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**2:1 Program for All Students with Technology Rich Classrooms (Not necessarily mobile)**

Public School Students	49,800,000
Current Computer: Student Ratio	3.8:1
Computers Needed	18,347,368
*Cost of Computer	1,000
Total Cost of Computer	18,347,368,421
**Cost of Computer, PD, and Technology Rich Classrooms	1,400
Total Cost of Laptop, PD, and Technology Rich Classrooms	25,686,315,200
Additional Cost for 18,347,368 Students for Technology Rich Classroom (275/student)	5,045,526,338
Total Cost of Computer, PD, and Technology Rich Classrooms	30,731,841,538

***Computers and Laptops**

The current average selling price of a laptop computer in schools for all hardware vendors is \$1,106. The actual price varies and may be lower, based upon:

- Quantity of purchase (i.e., volume discounts)
- Purchase type (i.e., buying & leasing arrangements), and
- Model type (i.e., standard size notebooks, smaller size "netbooks", and handheld "mobile" devices)

This category includes desktops, laptops, servers and other storage devices.

****Cost of Computer, PD, and Technology Rich Classroom**

This includes the following:

- Software and e-Curricular resources, including digital content, instructional management tools, productivity applications, online instructional resources, and courseware and digital content
- Teacher and classroom technology, including interactive whiteboard, document camera, digital camera, science probes, etc.
- Professional development, training, and support
- Servers and data storage

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