The education market is flooded with vendors offering the latest in 21st century teaching and learning tools. Creating the ideal learning environment and meeting district goals for education transformation requires a systematic process for selecting, distributing, and sustaining these tools.

A well-designed selection process yields the following results:

- Promotes objective, informed decision-making
- Maximizes technology budget
- Helps ensure equity of technology distribution
- Provides a foundation for continued technology growth
- Standardizes equipment and thereby simplifies technology management, maintenance, upgrades, and repairs
- Gets the right tools into the hands of teachers and students
- Encourages technology adoption, integration, and usage
- Reinforces and accelerates the district’s vision for education transformation
Success Factors

• **Interdisciplinary planning team** – A cross-functional planning team that includes technology and curriculum specialists, teachers, principals, and other representatives helps ensure that technology choices take into account the special requirements of each group.

• **Technology road map** – Creating a road map allows districts to plan technology funding, sustain technology purchases, and update equipment as needed.

• **Full-service vendors** – Working with reputable vendors who offer professional development resources, online support services, and comprehensive warranties helps control costs and maximize technology use.

• **Systematic approval process** – Using a systematic approval process (with staff input) for equipment, vendors, and pricing helps streamline the selection, ensure objectivity, and encourages stakeholder buy-in.

• **Standardization** – Standardizing technology ensures consistency, minimizes professional development and IT training requirements, creates opportunities for volume discounts, and reduces the complexity of maintenance and upgrades.

• **Distribution of technology throughout district** – Systematically seeding technology across the district instead of focusing heavily on a few select schools creates visibility and momentum, ensures equity, and stimulates adoption, integration, and usage.
A Systematic, Objective Approach to Selecting Technology

The following discussion provides an overview of the processes and best practices for selecting 21st century teaching and learning tools. Some of these processes are interdependent or occur in parallel. In many cases, districts work with education partners to create and execute a comprehensive technology plan.

- Organize an interdisciplinary planning team
- Align technology goals with the district vision
- Discover what is possible
- Assess physical infrastructure and network
- Assess current inventory of teaching and learning tools
- Establish criteria for a baseline classroom
- Compare offerings
- Develop a distribution road map
- Test-drive the technology
- Provide first-day support
- Evaluate technology’s efficacy
- Budget for sustainability

Attributes

Evaluation

The following list provides examples of the attributes to be considered when selecting new technologies. These should be rated on a scale of 0 to 3, with 0=not applicable/no rating, 1=poor, 2=average, and 3=excellent.

- Equipment available for state contract pricing
- Process for equipment replacement/repair
- Parts life and replacement costs (light bulbs, batteries)
- Parts replacement convenience
- Training (how provided by vendor, follow-ups in person, online tutorials)
- Technical support availability
- Maintenance schedule and costs
- Warranty (more than one year, replacement for repair, shipped by whom, on-site fix, turnaround time)
- Availability of relevant content to complement technology
- Compatibility with other technology in the classroom, school, or district
Organize an Interdisciplinary Planning Team
From the beginning, involve technology staff, instructional technologists, curriculum designers, administrators, central office personnel, teachers, and students in the planning process. Interdisciplinary collaboration encourages stakeholder buy-in; helps ensure that the network, physical infrastructure, and staff can support technology purchases; and helps align technology purchases with the curriculum and preferred pedagogical approaches. Also include individuals with strong project management skills in budgeting, scheduling, contracting, and working with vendors.

Align Technology Goals with the District Vision
The most powerful technology adoption plans begin with the district developing a comprehensive vision and goals for 21st century education, and then determining the type of learning environment that best supports these goals. Identify specific, measurable education goals, clarify how you will use technology to meet them, and establish attainable benchmarks to measure progress. Think in terms of a holistic technology solution, in which teaching and learning tools complement one another, rather than individual, unrelated point solutions.

Discover What Is Possible
To obtain a well-rounded perspective of a 21st century learning environment, attend conferences, read the literature, and discuss ideas with peers in other districts. Consult with experts in education technology who can expose the planning team to the latest research, convey what is possible with technology, and guide and validate decisions. Then, determine which tools are likely to have the most immediate and far-reaching impact on advancing the district’s goals for 21st century education.

Assess Physical Infrastructure and Network
This step is logistically critical. Investigate whether classrooms have sufficient power and electrical outlets to support technology additions. Decide how devices will connect to the network (through cabling, wirelessly, or both). Evaluate the network’s bandwidth and configuration to determine whether it can reliably support district growth as well as video conferencing, streaming content, multi-media applications, resource centralization, and other content & functionality that are vital to productivity, research, and collaboration. If significant upgrades are needed, prioritize requirements and develop a three- to five-year plan to meet your goals.

Assess Current Inventory of Teaching and Learning Tools
Document the type, number, and location of all teaching and learning tools, including education software. Doing so enables the district to determine whether existing inventory aligns with goals; pinpoint gaps; identify technology that is outdated, redundant, or in need of repair; and evaluate whether technology distribution is equitable. Include serial numbers, warranty information, purchase and service dates, and anticipated replacement dates. List the inventory in an online database that can be easily accessed, reviewed, and updated as you purchase new technology. In addition, assess technology usage to determine whether existing technology is leveraged to its full potential.

Establish Criteria for a Baseline Classroom
Identify the minimum technology that every teacher should have. Focus on proven technology and doing a few things well. A laptop with Internet connectivity, a projector, and a pull-down screen can meet many basic needs, allowing teachers to bring rich media and web-based exercises into the classroom. Aside from the baseline, identify classroom technologies needed for enhanced classrooms that will enable more advanced, interactive capabilities such as interactive whiteboards, voter response systems, multimedia workstations, laptop carts, and video conferencing equipment. Plan to implement these technologies in district schools as budget, time, and other resources allow.

Compare Offerings
Identify three to five of the top vendors for each tool being purchased. Invite the vendors to present their products to an evaluation team that includes representatives

“School is not about transmitting information. Kids can get any information they want. The trick is to motivate them to want to get the right information and then give them a choice about how to get that information.”

Phil Schlechty
Founder, Schlechty Center
especially teachers) from each school, multiple grade levels, and every discipline represented on the planning team. Have each member of the team evaluate and rate the attributes of each product and provide comments. Also consider whether each vendor can support the scale of the planned implementation. At the end of the evaluation session, tally the scores for each product and review comments. Factor in the total cost of ownership before making a final decision; that is, costs beyond the purchase price such as maintenance, upgrades, professional development, and support.

**Develop a Distribution Roadmap**

Decide which teachers and schools get what resources, and when. Require teachers to apply for grants for more advanced technologies to ensure the most qualified and motivated teachers receive them and model their use for other teachers. When planning phased installations, group schools that feed into other schools (elementary to middle to high school) so students have continuity of technology as they progress through grade levels. Decide whether non-baseline technology will be located in a classroom, on a cart, or in a center. Consider long-term plans for classroom assignments so that stationary technology installations such as interactive whiteboards are compatible with the courses being taught in those rooms.

**Test-Drive the Technology**

When considering a large purchase, ask vendors to allow a 30-day trial of equipment. Clarify how you will use the technology and your expectations for it. Then test those expectations in a variety of actual classroom settings with students present. Note acoustics, lighting, visibility, seating arrangements, and other features that may affect teachers’ and students’ ability to use the technology effectively. Adjust features of the technology as needed.

**Provide First-Day Support**

Make sure teachers have a good experience from the first day they use new technologies. Check that all new equipment has all the parts needed. Arrange for technology interns or other tech-savvy individuals to visit classrooms and be on-hand to answer questions, provide moral support, and adjust equipment. Leave documentation in each classroom that explains how to connect equipment, solve simple problems, and get help. Enlist principals to encourage, support, and reward the use of new technology.

**Evaluate Technology’s Efficacy**

Use interviews, online surveys, observations, technology use logs, interim assessments, and other mechanisms to determine whether technology purchases are meeting the goals and success indicators established during the initial planning phases. Continually document these indicators as well as total cost of ownership, maintenance issues, and other information gained through the experience using the technology. Use this information to determine what works best and whether the district is getting the best value for its investment, as well as to inform administrators, parents, the community, and the school board about the impact of the technology.

**Budget for Sustainability**

Set aside a percentage of the district’s total annual budget for technology to ensure the technology integration program moves forward and technology purchases can be sustained over time—not only in terms of hardware and software, but also in terms of ongoing professional development and support services. Cisco® customers that are strongly committed to accelerated education transformation typically dedicate three to five percent of their budget to technology. Consider working with a consultant to maximize the amount of funding (often hundreds of thousands of dollars) obtained from E-Rate and other sources. Create a long-term plan for acquiring, maintaining, replacing, and upgrading technology. Include a budget for regular training of the technology staff so individuals can stay current on equipment maintenance.

For more information about Cisco Global Education, please visit our website at [www.transformglobaleducation.org](http://www.transformglobaleducation.org).
Cisco Recommended Ecosystem Partners for System Transformation

• **Consortium for School Networking**  
  (www.cosn.org)  
  This organization offers conferences and resources to support leadership development and awareness of emerging education technologies.

• **Metiri Group**  
  (www.metiri.com)  
  This education consultant provides a broad range of services that empower educators to advance effective teaching and learning, use technology in powerful and meaningful ways, and foster the development of 21st century skills.

• **National Educational Computing Conference**  
  (www.iste.org)  
  This annual conference, sponsored by ISTE, provides a forum for thought leaders, technology vendors, and education professionals to share ideas, best practices, and the latest developments related to integrating technology into 21st century learning environments.

• **November Learning**  
  (www.novemberlearning.com)  
  This organization promotes the effective use of information and communication technologies to support and enhance learning for children and communities.

• **Partnership for 21st Century Skills**  
  (www.21stcenturyskills.org)  
  This advocacy organization focuses on infusing 21st century skills into education. Cisco is a founding member.