Appendix A

Roadmap for Large-Scale Technology Implementations
Many technology initiatives in schools have failed in the past because of a lack of attention to the key education success measures (ESMs), implementation factors (KIFs), and best practices.

The Project RED team has developed a road map for education leaders to guide schools embarking on large-scale technology implementations. The road map is based on the One-to-One Institute research, the One-to-One Institute consulting services to schools and districts, Intel’s K-12 Blueprint, the Project RED research, and the America’s Digital Schools research.¹

**Planning**

Develop a well-designed plan for implementation and sustainability.
- Build a shared vision.
- Involve all stakeholders—principal, teachers, technology coordinators, curriculum directors, parents, students, and community members.
- Include vision, mission, goals, milestones, resources, roles, responsibilities, monitoring, and evaluation.

**Leadership**

Lead and support all aspects of the implementation effort.
- Develop a shared vision with focused goals based on research and best practices.
- Define a strategic action plan toward goals.
- Build ongoing professional learning to lead school transformation.
- Develop change management expertise, especially second-order change.
- Schedule team meetings.
- Schedule classroom observations and walk-throughs.
- Communicate formally and informally.
- Ensure funding for sustainability.

**Technology Infrastructure**

Build a solid technology infrastructure and maintenance/service plan.
- Ensure connectivity and access points.
- Include support policies and procedures.
- Pay attention to charging and storing needs.
- Ensure on-site presence by technical personnel.
- Develop teacher and student troubleshooting skills.

**Professional Learning**

Schedule regular professional development for administrators, teachers, and technical personnel.
- Include parents and guardians.
- Include all school personnel.
- Build a coaching/mentoring model for administrators, teachers, and technology staff.
- Create a train-the-trainer model to ensure internal capacity.
- Focus on changing the classroom culture through curricular integration and dedicated time and resources.

Communications
Encourage viral information sharing among stakeholder communities.

- Clearly communicate the implementation research base, goals, vision, benchmarking/evaluation plans, and opportunities for feedback/input.
- Involve internal stakeholders, such as teachers, librarians, students, custodial staff, bus drivers, tech support personnel, curriculum directors, board members, and support staff.
- Involve external stakeholders, such as parents/guardians, media, legislators, businesses, religious groups, colleges, and universities.

Policies
Develop and document policies and procedures guided by instructional goals.

- Ensure school board agreement.
- Include student acceptable use policy.
- Stay flexible and open to alternative directions.

Support
Build a network of partners and experts.

- Develop showcase sites to demonstrate best practices.
- Build a team of lead teachers and super-coaches.
- Ensure regional support.
- Research lessons learned by other schools.
- Build vendor partnerships.
- Reach out to other districts and states.

Expectation Management
Set realistic goals.

- Communicate that research shows teachers need three to five years to seamlessly integrate technology and instruction.
- Understand that student achievement will not increase through 24/7 access to technology alone.
- Understand that student achievement will increase over time when a guaranteed curriculum and instructional program are integrated with 21st century tools.

External Evaluation
Include ongoing independent evaluation.

- Involve an outside research organization to provide consistent and focused review relative to goals.
- Be accountable for reaching benchmarks and adapt program as needed.
- Build replicable, scalable, and sustainable models.
Roadmap Checklist

Leadership

☐ Identify district committee members and meeting schedule.
☐ Identify team leadership.
☐ Schedule district leadership planning sessions (with superintendents, curriculum directors, principals, technology directors, business officials, teacher leaders).
☐ Share and discuss the research on 1:1 and large-scale implementations.
☐ Draft the shared vision.
☐ Plan the timeline for building the infrastructure.
☐ Bring district leaders together in Dynamic Technology Planning Program (DTPP) training sessions.
☐ Develop and schedule the professional development plan.
☐ Establish the timeline for building-level training (principals, teachers, technical support, and lead teachers).
☐ Draft the administrative support plan for classroom teachers in pilot and ensuing years.
☐ Schedule and implement orientation plans for all stakeholders.
  • Students
  • Teachers
  • Bus drivers
  • Support staff
  • Parents/guardians
  • Community

☐ Plan the outbound communications program to community and parents/guardians.
☐ Secure signed acceptable use policies.
☐ Identify the assessment plan and timeline.
  • Create program goals.
  • Collect baseline data.
  • Develop assessment protocol and tools.
☐ Schedule the implementation timeline.
  • Wireless network testing
  • Bandwidth capacity testing in pilot class
  • Ongoing professional development
  • Troubleshooting protocol
  • Technology support protocol
    – Teachers
    – Students
    – Other personnel
    – Online
    – Help desk
☐ Plan the distribution of devices to students.
☐ Schedule site visits.

Technology and Infrastructure (Initial pilot requirements)

☐ At least one classroom
☐ At least two teachers trained
☐ A laptop for each teacher
A mobile computing device for each student in the classroom

Infrastructure to support pilot
- Bandwidth
- Access points
- Server space
- Electrical capacity in classroom

On-site technical support

Relationship with vendor
- Terms of contract
- Support services
- Swap out and repair policies

One extra device for every ten laptops for loaners

A charging cart for each classroom

Two battery packs for each laptop

Accidental damage and theft insurance for all computing devices

Other Beneficial Classroom Technology

- LCD projector
- Interactive whiteboard

District Infrastructure

- An implementation timeline
- Enough access points to ensure wireless connectivity for all students in the 1:1 learning space

Awareness of how the program might affect other technology users

An appropriate firewall, virus protection, and content filter

Dedicated server space able to handle the capacity of the program (a folder for every student and teacher)

Wireless network testing

Bandwidth capacity testing

Appropriate use policies for the network, the Internet and the mobile computing device

Appropriate device preparation
- A good image
- Adjustment of all settings
- A device identification method
- Loading and testing of all software

A plan for the distribution of devices to students

Enough technology personnel to support the 1:1 program

An established relationship with the device vendor and teacher access to their help desk and other support

A quick response support plan for repairs and other technical questions that can be easily communicated to teachers

Appropriate damage and theft insurance

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