

# Technology and Learning

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3 Year Technology Plan



*The International School  
of Azerbaijan*



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## Executive Summary

During school year 2011 - 2012, the TISA Technology Committee conducted a full review of Information and Communication Technology at TISA. Parents, students, administrators, support staff, and teachers from all three International Baccalaureate (IB) programs participated, and the result of that work is this proposal. The TISA community believes that we must prepare our students for life in an ever-changing, technology-dependent, interconnected world. Developing technological skills while in school, from the earliest years to the Diploma Program and beyond, is essential for our students and our duty as educators and as a learning community.

The IB recognizes the essential nature of technology in the modern world:

*The IB offers schools programmes that promote the development of “inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect”. The emergence of educational technologies has transformed how IB World Schools achieve this mission, (ICT in the PYP, “Learners of today and tomorrow”).*

IB World Schools must address what the IB has recognised as essential modern skills: Investigating, Creating, Communicating, Collaborating, Organizing, and Becoming a responsible Digital Citizen, (ICT in the PYP, “Learners of today and tomorrow”). This proposal aims to achieve that through an innovative approach to technology at TISA.

The Technology Committee proposes launching a three year *Technology and Learning Plan* to begin school year 2012 - 2013. The core of this plan is an overarching vision that addresses the essential nature of technology for authentic, empowered learning. This plan allows our students to develop the necessary skills for life in the modern world.

## Other TISA Technology and Learning Plan Materials

1. TISA 1:1 Program Implementation ([Appendix A](#))
2. NETS Standards for Teachers, Students, Administrators, and Coaches
3. ICT in the PYP
4. ICT in the MYP

Documents available from The Educational Technology Coordinator upon request.

# Vision and Goals

## Vision

Our students will effectively and responsibly connect and communicate locally and globally. They will continually inquire and reflect, express their understanding and engage in authentic individual and collaborative learning.

The integration and application of technology in teaching and learning will facilitate and enhance these skills and knowledge.

## Goals

This technology plan will be driven by three overarching goals developed by the Technology Committee:

1. Improved student learning through access to technology
2. Technologically literate students, teachers and parents
3. Reliable educational technology environment

## Objectives

Each goal has been broken down into a series of objectives. Each objective directly addresses one area of technology development:

### Goal 1: Improved student learning through access to technology

#### *Objective 1.1: Every student has access to a standard device at all times.*

- TISA will phase in a full 1:1 program consisting of iPads for P1 - P5 and Macbook Pro laptops for P6 - IB2. (See [Appendix A](#) for full details)
- Timeline:
  - 2012 - 2013: One class set of devices for each grade level from P1 - P8. Two Secondary classes go 1:1. Room 407 - Media Lab redone.
  - 2013 - 2014: Additional Class set of devices for each grade level in P1 - P8. Three Secondary grade levels go 1:1.
  - 2014 - 2015: Third class set for each grade level in P1 - P8. Final two Secondary grade levels 1:1. Full 1:1.

#### *Objective 1.2: Online portfolios*

- 2012 - 2013: Students will use online portfolios to display and organize their work.
- 2012 - 2014: Teachers will use class blogs to manage classroom websites.
- 2012 - 2013: A central blog named *TISA Central* will be created to help the community find information on classes, student work, and general goings on around TISA.

#### *Objective 1.3: Collaborative systems for learning*

- 2012 - 2013: Students will be provided with an [@tisa.az](mailto:@tisa.az) email address.
- 2013 - 2014: TISA will transition to Google Apps for Education. This transition will

provide email, wiki, document sharing, and media management capabilities to all members of the TISA community.

***Objective 1.4: Action based research***

- 2012 - 2013: A committee will be formed to develop a list of strategies to promote and foster innovation through technology in teaching and learning at TISA.
- 2012 - 2013: Staff professional development opportunities will include international conferences focused on Educational Technology, as well as visits to technologically innovative international schools.

**Goal 2: Technologically literate students, teachers and parents**

***Objective 2.1: Dedicated staff development opportunities with implementation time***

- Ongoing: The school will provide in-school, Educational Technology PD opportunities that are mapped out through the year.
- 2012 - 2013: TISA will create a “*Teacher Tech Pilots*” program for teachers that are adept at using technology in the classroom. These teachers will serve as peer support for other staff members.
- 2012 - 2013: The Educational Technology team will create a central, online *PD Technology Portal* for all staff.
- 2012 - 2014: TISA will develop and implement a vertically integrated Digital Citizenship curriculum for students in both Primary and Secondary.
- Ongoing: Teachers and Administrators will integrate technology into existing curriculum.
- 2013 - 2014: TISA will offer an online Educational Technology Certification program for teachers.

***Objective 2.2: Educational Technology Facilitators***

- 2012 - 2013: TISA will hire one full-time Primary School Educational Technology Facilitator.
- 2012 - 2013: The Educational Technology Coordinator will take on a larger role in facilitating technology usage in the Secondary School while still providing support to the Primary School.
- 2012 - 2013: The Educational Technology Support Team will be formed by the Coordinator and Facilitator.

***Objective 2.3: Further training available to all members of the community***

- 2012 - 2013: TISA will adopt the NETS standards for students, teachers, coaches, and administrators.
- Ongoing: Educational Technology Team will provide technology based workshops to parents throughout the school year.
- 2012 - 2013: *Student Technology Squad* will be created to allow interested students an opportunity to have additional technology training and serve as technology support to teachers and students.

**Goal 3: Reliable educational technology environment**

***Objective 3.1: Technology support staff***

- Summer 2012: Technology support staff will receive training and certifications

- enabling them to fully support the school's platform of choice.
- 2012 - 2013: The Technology Department will institute a duty schedule with at least one member of the support department available for phone, Instant Message, or walk-in support while another is available via walkie-talkie to support urgent classroom requests.
- 2012 - 2013: The Technology Department will set the goal of responding to all urgent technical support issues within five minutes of receiving a request.
- 2012 - 2013: An additional Technology Support office will be opened in TISA 2.

**Objective 3.2: Fully equipped classrooms**

- 2012 - 2013: All teaching staff will be provided with a laptop. (See [Appendix B](#) for device specifications)
- 2012 - 2013: All classrooms will be fully equipped with:
  - Mounted Digital Video (LCD) projector
  - Audio system
  - Access to networked printers
  - Charging/storage cases for all devices (as needed)
  - Reliable internet
  - Wireless network connection
- 2012 - 2015: IT Lab 407 will be converted into a *Media Lab* in two phases:
  - 2012 - 2013 (Phase 1): Install high powered machines.
  - 2014 - 2015 (Phase 2): Convert room to mixed use space including mini-labs for music creation, digital radio production, and high end video editing.

**Objective 3.3: Reliable behind the scenes systems (Internet, wireless, printing)**

- 2012: The TISA Technology Department will adopt a replacement cycle for all equipment. The amount of time before replacement of each item type will be determined and recorded in the *Technology Policy Manual*.
- 2012 - 2013: The school's wireless network will be fully replaced with an upgraded mesh network based on the N standard. Hubs will be replaced to support Power Over Ethernet, easing the deployment of new base stations.
- Ongoing: Bandwidth will be monitored to ensure that students and teachers have full access to online resources. A Bandwidth Requirement Recommendation will be provided to The Board in March of each school year.
- 2013 - 2014: The Technology Department will perform an audit of current printing system and suggest changes to ensure best usage of school resources.
- December and May of each school year: Network Manager, Educational Technology Coordinator, Educational Technology Facilitator, Principals, and Director will meet to review progress of this plan and recommend revisions when needed.

**Objective 3.4: Effective administrative data management systems**

- August 2012: TISA will begin using PowerSchool to manage all student data. Data will be accessible online by administrators, teachers, students, and parents.
- Ongoing: Provide training and support to the TISA community in making the most of PowerSchool.
- 2012 - 2013: Legacy data will be migrated to PowerSchool.

**Objective 3.5: System to access and manage documents and media**

- TISA will transition document sharing to Google Docs in two phases:
  - 2012 - 2013 (Phase 1): Teachers and students will continue to use the current file system that utilizes network shared folders and dropboxes.

- 2013 - 2014 (Phase 2): Transition all documents to Google Docs. Students use Google Apps accounts to share documents and media with teachers and each other.
- 2013 - 2014: Image sharing will be transitioned in the same time frame as documents listed above. In Phase 2 images will be shared with Google Apps accounts through Picasa image sharing.



# Appendix A: 1:1 Program Implementation

## Platform Choice

### *Platform Requirements*

- Reliable
- Appropriate for students of all ages
- Strong support structure readily available in Baku
- Proven effectiveness in education
- An ecosystem of applications and software
- Strong professional development built around the platform
- The potential to grow with TISA and support ever changing technology needs

### *Platform Comparison*

#### *Apple*

##### Pros

1. Strong suite of student-based educational apps in iLife
2. Strong corporate educational commitment
3. More reliable equipment
4. Single support provider (Laptops and iPads)
5. Seamless software updates

##### Cons

1. Untested local service provider
2. Initially staff and student training will be devoted to platform instead of educational uses
3. Higher cost

#### *Windows*

##### Pros

1. Full support structure already in place in Baku
2. Staff and students already familiar with hardware and software
3. Lower cost

##### Cons

1. Not age appropriate across all grade levels
2. Lower reliability
3. No single ecosystem of educational applications
4. Software updates not as seamless

## Computer Specifications

The Technology Committee recommends iPads for P1 - P5 and Macbook Pro laptops for P6 - IB2.

[Appendix B](#) summarizes the specifications for the laptops, iPads and the high-powered Apple iMac computers for the *Media Lab* in room 407.

## Software

The following software will be installed on all laptops and desktops.

<i>Software Type/Use</i>	<i>Name of Software</i>
Digital video editing	iMovie (iLife Suite)
Audio recording/editing and music creation	Garageband (iLife Suite)
Photo editing and management	iPhoto (iLife Suite)
Calendar	Outlook
Word processing, spreadsheets, and presentations	Microsoft Office
Web browsing	Chrome (default), FireFox, Safari
Backup	Dropbox, TimeMachine
Image Editing	Photoshop
Multimedia creation	Adobe Creative Suite 3

The following Apps will be installed on all iPads.

<i>Software Type/Use</i>	<i>Name of App</i>
Digital video editing	iMovie
Audio recording/editing and music creation	Garageband
Photo editing and management	iPhoto
Interactive Whiteboard	Explain Everything
Word processing, spreadsheets, and presentations	QuickOffice, Pages, Keynote
Web browsing	Safari
Storytelling	Toontastic, StoryPatch
Math	Rocket Math, Math Bingo
Audio Books	Toy Story

This list of iPad Apps will grow and change as the program develops.

## Infrastructure Implications

### *Servers and Storage*

1. All students will continue to receive 200Mb of network storage space. Purchases made before school year 2011 - 2012 have increased storage capacity to be able to handle this load.
2. The Technology Department will continue to use VMWare to virtualize servers. This will allow the school to quickly deploy new server instances as needs arise. The current server provision will cover the needs of the network.
3. A comprehensive backup and restore process has been put in place during school year 2011 - 2012. An additional backup server will be purchased for school year 2012 - 2013 that will provide an additional level of backup redundancy.

### *Active directory*

TISA currently uses Microsoft Active Directory (AD) to manage authentication and user provisioning. A link between the AD server and a Mac OS X server was established during school year 2011 - 2012. This connection will be continued into 2012 - 2013 to allow the new OS X based machines to authenticate to OpenDirectory.

The server will be upgraded to OSX Lion Server during the summer of 2012.

### *Wireless*

All current G based wireless access points (AP) will be replaced at the start of school year 2012 - 2013 with APs capable of N. The new access points will be controlled via a central control server, forming a mesh network. This will allow a high level of network elasticity, thus providing a more robust user experience. The Technology Department will be able to monitor network load with the new server, allowing them to deploy additional APs as network requirements grow and change.

### *Battery and Charging*

1. The Macbook Pro i5 13.3" has a 63.5 watt hour battery with an Apple quoted use of 7 hours.
2. No chargers brought to school by Secondary students.
  - a. Students required to charge battery at home each night as part of student homework policy
  - b. Fully charged battery every day is a class requirement for all subjects
    - i. "Battery Checks" in homeroom classes, similar to current homework diary checks
  - c. Standard policy at 1:1 schools
3. Small number of "loaner" laptops available for checkout in library if students forget laptop or battery is not charged. Students that repeatedly bring laptops to school uncharged will be disciplined.
4. Charging station will be placed in the Secondary School library.

### *Device Safety and Security*

1. Neoprene laptop cases will be provided with each device.
2. Safe handling of computing equipment will be covered in student handbook and *Laptops and Learning* guide given to parents and students at the start of each year.
3. Professional Development will be provided to teachers for managing safe student laptop usage.

4. Security cameras and a video recording server that were installed during school year 2011 - 2012 and additional cameras installed in school year 2012 - 2013 will allow for increased device security.
5. Primary School classes will store devices in locked Bretford carts in each classroom.

### *Warranty and Service*

TISA will adopt a four layer system of device protection:

1. Temporary loaner devices will be available to students in the event of a hardware malfunction on student laptops.
2. AppleCare will be purchased for hardware malfunction and serviced by Apple Authorized Service Center, Baku.
3. Accidental damage cover extending past what AppleCare provides will be negotiated with either a local insurance provider or Apple Authorized Service Center, Baku.
4. A "Device Replacement Fee" will be charged to student's family in the event of multiple instances of damage to student devices.

If there has not been an extended warranty plan signed with a local provider by the end of school year 2012 - 2013 an alternate plan will be put in place. This plan covers service provided to each device before it is replaced in accordance with the TISA replacement cycle.

1. Year 1 of device lifetime: TISA would use the AppleCare Warranty that comes with each device to have them serviced at the local Apple Authorized Service Center.
2. Year 2 - 3: TISA will self insure the devices by:
  - a. Getting full Apple Hardware Certification for a member of the Technology Support Department.
  - b. Budgeting for the purchase of replacement parts from the Apple Authorized Service Center.
3. Year 4+: Devices would be decommissioned after the third year of use in line with the TISA Device Replacement Cycle.

### *Backup*

Students will be responsible for backing up their own data. Students will be given multiple options on how to manage backup.

1. Student handbook will detail different backup options, including "TimeMachine" and online services such as "Dropbox" or "Box.net"
2. Students will manage their own backup procedures with teacher guidance

Server space will continue to be allocated to each student for use while on campus.

### **Implementation**

The tables below list major milestones in the three year move to 1:1, a detailed first year rollout, and project management information.

#### *Major Milestones*

These milestones are dependent on when devices arrive at TISA. These dates take into account ordering, customs, and shipping delays as much as possible. Final dates and times are subject to change based on these unpredictable factors.

<b>Event</b>	<b>Date</b>
1:1 Plan approved by Board	April 2012
Teachers receive machines	August 2012
One class set of devices for each Primary grade level	October 2012
First cohort of Secondary students (two grades) get devices	January 2012
Second class set of devices for each Primary grade level	October 2013
Second cohort of Secondary students (three grades) get devices	October 2013
Final class set of devices for Primary grade levels	October 2014
Final cohort of Secondary students (two grades) get devices	October 2014
Full 1:1	October 2014

### *Detailed Implementation Timeline for Year 1*

This is a detailed implementation timeline for year 1 of the 1:1 program rollout. A modified and updated version of this timeline will be developed for the next year in April.

<b>Event</b>	<b>Date</b>
Order placed for equipment	May 2012
First communication to all stakeholders	May 2012
Extended warranty negotiations begin	May 2012
Technology Department attends Apple Certification training	July 2012
Technology Department configures teacher machines and begins installing new infrastructure	July - August 2012
Teachers attend trainings on OS X, introduction to digital literacy, and authentic incorporation of technology in the classroom	August - September 2012
Teachers receive new machines	August 2012
Technology workshops for parents	September - December 2012
Primary classes receive class sets of devices	October 2012
Digital Literacy sessions for students	August - February 2012
Issuing of devices to phase 1 Secondary students	January 2012

### *Project Management*

This project will be managed by the Administration of the school in consultation with The Board of Governors. Specific tasks will be handled by:

Network Manager	Ensuring that the Technology Support Department meets all requirements of this plan
Educational Technology Coordinator	Planning teacher professional development, parent sessions, and serving as a liaison between all stakeholders
Pastoral Coordinators (Secondary), PYP Coordinator and Curriculum Committee (Primary)	Plan and implement Digital Citizenship curriculum, ensure alignment of plan implementation with school curricular goals as well as IB recommendations on ICT
Divisional Principals	Direct the planning of Technology related trainings, curriculum development, and overall plan logistics
Director	Meet regularly with the Educational Technology Team for updates on plan implementation

## Communications Strategy

A number of communication channels will be used in order to fully inform the TISA community of this plan.

### *Teachers*

#### *Technology Committee*

A member of each Primary grade level and Secondary department is on the Technology Committee. These members disseminate Technology Committee information to their direct team members as well as act as a voice for that team to the larger Technology Committee.

#### *Weekly Memos*

Information on upcoming changes and additions to the Technology Plan at TISA will be communicated to staff via the weekly divisional newsletters.

#### *Weekly Meetings*

Information about the Technology Plan will be presented to staff members at Primary and Secondary school meetings each week.

### *Students*

#### *Homerooms*

Homeroom teachers will serve as the primary source of information for students on the plans and schedules for the school Technology Plan. This information will be provided to homeroom teachers from a member of the Educational Technology Team.

#### *Student Councils*

Both the Primary and Secondary Student Councils will act as additional disseminators of information.

## *Parents*

### *PTA*

The Educational Technology Team will liaise with the PTA Executive Board. The PTA will assist with scheduling and planning trainings and technology related events for parents.

### *TISA Times*

The Educational Technology Team will update parents every month in the *TISA Times* on the progress of the Technology Plan.

### *TISA Look Ahead*

All upcoming Technology related events will be communicated to parents in the *Look Ahead* email that is sent to parents from the divisional assistants.

## Appendix B: Device Specifications

The following table summarizes the specifications for laptop and desktop machines that we will provide to all teachers and support staff as well as Primary iPads. All office workers (Business Office, Divisional Secretaries, IT Dept) will receive desktop computers.

### Apple Macbook Pro

Screen: 13.3-inch high-resolution LED-backlit glossy widescreen display  
Hard drive: 500GB  
Processor: 2.4 GHz dual-core Intel Core i5  
RAM: 4Gb  
Graphics: Intel HD Graphics 3000 Chipset  
Battery: 63.5-watt-hour (7 hours of use)  
Camera: Front facing "Face-Time" camera  
Weight: 4.5 pounds (2.04Kg)

#### *Additional Peripherals*

Case: Neoprene case  
Adaptor: Mini DisplayPort to VGA adaptor (teachers only)

### Apple iMac

Screen: 21.5-inch LED-backlit glossy widescreen TFT display  
Hard drive: 500Gb (7200rpm)  
Processor: 2.5Ghz quad-core Intel Core i5  
RAM: 4Gb  
Graphics: AMD Radeon HD 6750M graphics processor with 512MB of GDDR5 memory  
Camera: Front facing "Face-Time" camera  
Peripherals: Wired keyboard and Apple Magic Mouse

### New iPad (Third Generation)

Screen: 9.7-inch (diagonal) LED-backlit glossy widescreen Multi-Touch display with IPS technology  
Storage: 16Gb SSD  
Connectivity: WiFi (N)  
Size and Weight:

- Height: 9.50 inches (241.2 mm)
- Width: 7.31 inches (185.7 mm)
- Depth: 0.37 inch (9.4 mm)
- Weight: 1.44 pounds (652 g)

Camera: 5-Megapixel iSight camera (rear), FaceTime VGA camera (front)  
Battery: Built-in 42.5-watt-hour rechargeable lithium-polymer battery  
Input and Output: Microphone, built-in speaker

#### *Additional Peripherals*

Headphones: Hamilton Electronics SchoolMate Deluxe Stereo/Mono Headphone  
Storage: Bretford PowerSync Cart for iPad



## Appendix C: References & Acknowledgements

- a. United World College of South East Asia - iLearn Initiative: <http://www.uwcsea.edu.sg/page.cfm?p=2001>
- b. Shanghai American School - Learning with Laptops: <http://saslaptops.wikispaces.com/>
- c. Hong Kong International School - 1:1 Learning: [http://ets.hkis.edu.hk/?page\\_id=75](http://ets.hkis.edu.hk/?page_id=75)
- d. United Nations International School Hanoi - Technology and Learning Plan: <http://www.unishanoi.org>