

ONE LAPTOP PER CHILD DEPLOYMENT GUIDE 2011

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2011-09-12

One Laptop per Child

One Laptop per Child (OLPC) is a non-profit organization founded in 2005 with the goal of transforming education by providing every child with access to a connected laptop computer, the XO laptop. Connected laptops provide a cost-effective way for states to create learning environments that facilitate the greatest possible development of all children. We are driven by a firm belief that laptops have a unique ability to leverage children's innate curiosity and desire to learn, to develop critical thinking skills, and to foster a life-long love of learning.

OLPC Mission

To create educational opportunities for all by providing each child with a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning.

Five core principles

Child ownership Access to information and activities at all times create a portable learning and teaching environment. Child ownership includes protecting, caring for, and sharing this creative environment.

Low ages The XO is designed for the use of children ages 4 to 12, covering the years of elementary school.

Saturation In order to achieve meaningful educational improvement each child should own a laptop so no one is left out : digital saturation implies whole communities to become a part of the program.

Connection XOs not only connect to the internet but to other XOs as well, providing an “expanded school” that grows beyond the walls of the classroom, enabling a dialogue among generations, nations and cultures.

Free and Open Software As children grow and pursue new ideas, the software, content, resources and tools should be able to grow with them. Children not only participate in activities and acquire knowledge ; they can create activities and transfer knowledge too, and share it with the entire global community.

OLPC Learning Strategy

“It’s an education project, not a laptop project”

OLPC’s principles are based on the learning theory of Constructionism, which refers to the concept of “learning by doing”. Seymour Papert, a mathematician, computer scientist, and educator ; developed the theory of Constructionism built upon the work of renown Swiss psychologist of Jean Piaget on Constructivism learning theories.

Papert explained that learning is most effective when the learner is engaged in the construction of a meaningful product, and that technology can become the tool for building knowledge. He made the first and most important efforts to provide children with control of new technologies. Based on his research he suggests all children should learn to program the computer, because this allows them to develop unique skills that empower learners to learn about the way they learn.

OLPC’s philosophy is inspired by Papert and other progressive educators who share his ideas about learning. We believe the laptop is the agency to engage children in constructing knowledge based upon their personal interests. The laptop provides children with tools for sharing and critiquing these constructions which will lead them to become better learners and teachers. Therefore, OLPC does not focus on computer literacy, as that is a by-product of the fluency children will gain through use of the laptop for learning.

OLPC learning strategy focuses on building :

- Developing Digital Fluency. This refers to computer programming skills and to the ability to build things of significance with technological tools. “A technologically fluent person should be able to go from the germ of an intuitive idea to the implementation of a technological project (Papert & Resnick, 1995)”.
- Reflecting about learning, learning to learn and thinking about self-learning strategies.
- Building learning and innovation skills in alignment to with the 21st Century Skills :
 - Creativity and Innovation
 - Critical Thinking and Problem Solving
 - Communication and Collaboration

Software : The Sugar Learning Platform

In accordance with the learning theory of Constructionism and OLPC’s principle of Open Software, Sugar provides the appropriate platform to achieve OLPC’s learning strategies and mission. With Sugar’s Activities, children engage in exploring knowledge, in expressing themselves through different media and in computer programming skills. Sugar promotes collaborative learning through Activities that encourage critical thinking, collaboration, and reflection.

Introduction to Deployment Guide

This document provides guidelines for program directors (government officials, foundations, private funders, etc.) conducting One Laptop per Child deployments on a large scale to schools, cities, regions, or country wide.

This guide outlines key considerations to be taken into account throughout the different stages of a deployment. It captures the knowledge and expertise gained from deploying over 2 million laptops across more than 30 countries around the world. Therefore, this document can be adapted for each new deployment according to each country’s unique cultural, economical

and socio – political context and in accordance with its particular strengths and capabilities.

Deployment Phases Overview

A deployment can be divided in three main phases : Planning Phase, Deployment Phase, and Post- Deployment Phase. This document is meant to guide project managers through the roadmap towards a successful deployment, by describing essential steps, and decisions to consider, and by suggesting an action timeline.

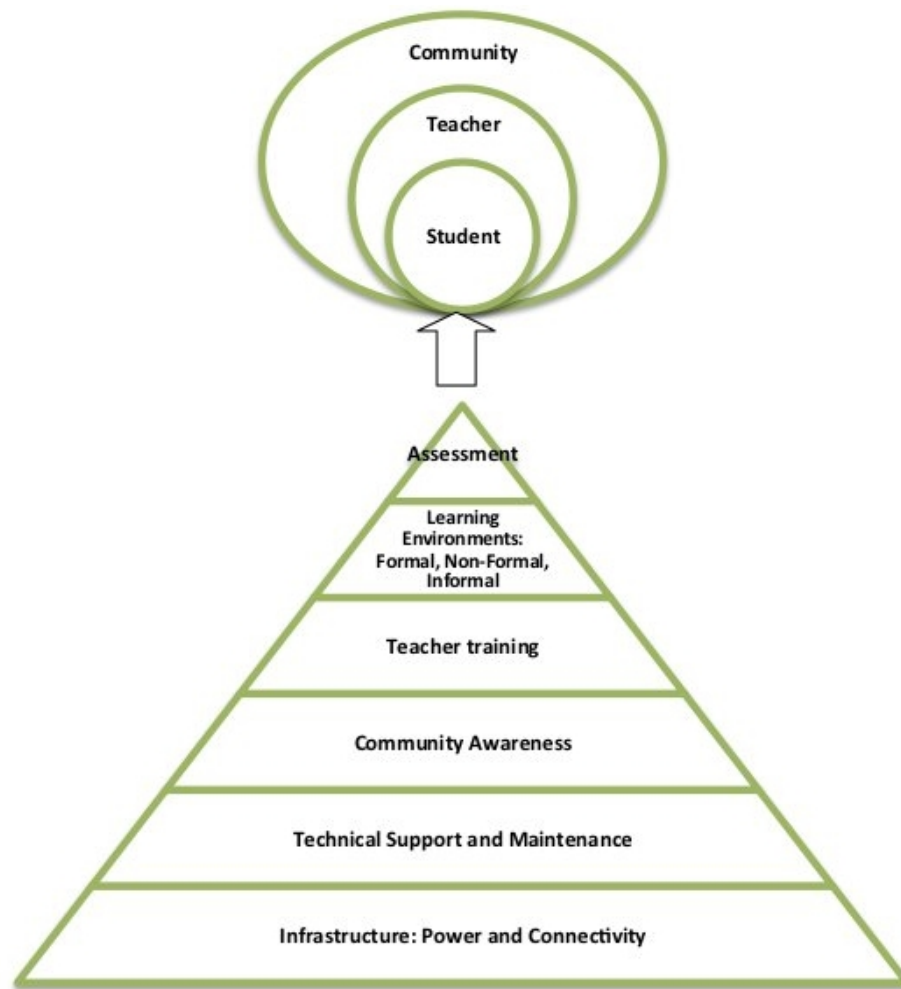


Project Implementation

An OLPC project has a direct impact on children and their learning outcomes. Other actors that are equally impacted by the project are the school systems (especially teachers), families, and communities as a whole. It is important to consider all of these actors when defining objectives and implementation strategies. Various domains must be included in such strategies in order to ensure sustainability of the project. The pyramid below illustrates the hierarchy of these domains.

The base of the pyramid is infrastructure, which refers to providing access not only to the laptop, but also to the electrical grid (or other alternative power source), to the Internet, and to school servers. Without this base, movement towards the top of the pyramid will be very difficult and will limit the outcomes expected to be achieved with the project. The top tier refers to two types of assessments.

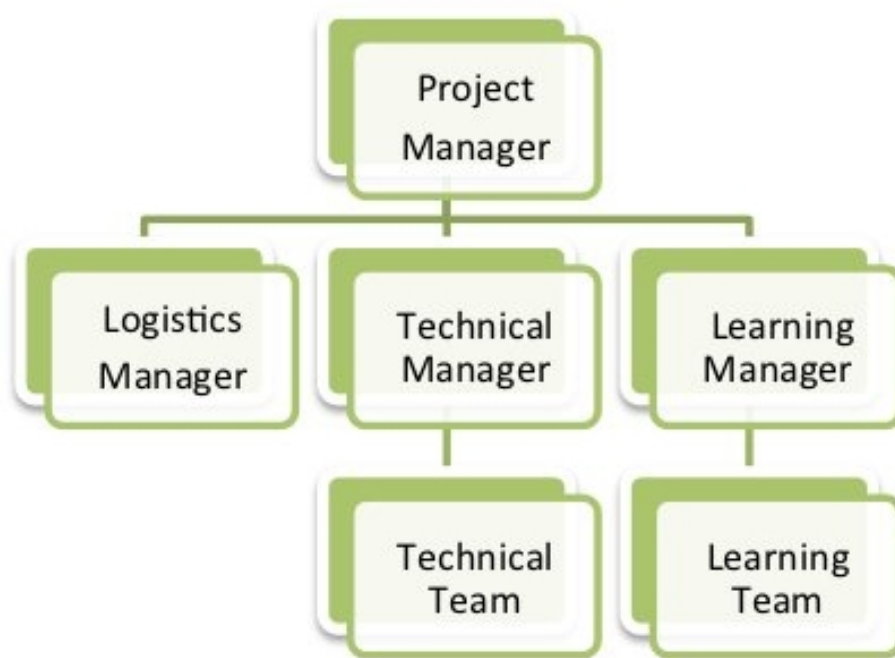
Assessments of the first type measure the project's impact, including student learning and other objectives, such as social effect and school improvement. Assessments of the second type identify areas for improvement of project implementation. The elements of the pyramid are meant to be in a constant cycle where the top always gives feedback to the rest of the domains.



Core Team

For successful implementation of the OLPC project, we highly recommended deployments to recruit and build a local team with skills in : managerial, logistics, technical, and educational fields. The term we use to refer to this team is the “Core Team”. This team will serve as the interface between the project and OLPC.

We advise hiring a project manager with experience in : project and budget planning, external relations and communication. This manager is expected to plan and coordinate operations, as well as to supervise the different departments involved in the project. In addition to managerial skills it is preferable that the potential manager has a background in technical and/or educational fields. The project manager should take on the selection of the core team members he will manage. The following organizational chart for the Core Team is recommended :



For large deployments (>50,000 units) we consider a vital requirement to comply with all members mentioned in the organizational chart. Local leaders should be hired as educational/learning and technical managers to coordinate matters related to their area of expertise. A logistics coordinator should be in charge of laptop storage, inventory and spare parts management. For smaller deployments (<2,500 units) the logistics manager's tasks can be performed by the technical and/or the project manager.

The following chart provides additional information on the responsibilities and required skills of the Core Team members :

Team	Areas of expertise	Responsibilities
Project Management	<ul style="list-style-type: none"> • Project planning • Budget planning • External relations • Communication 	<ul style="list-style-type: none"> • Institution of project policies • Creation, Supervision and Support of Technical and Educational Local Teams • Community Awareness and Public Relations • Laptop Distribution Planning • Project Monitoring • Evaluation Reports • Build relations and agreements with community leaders and/or governmental institutions
Logistics	<ul style="list-style-type: none"> • Customs • Inventory Management 	<ul style="list-style-type: none"> • Laptop storage and inventory management • Spare parts management
Technical	<ul style="list-style-type: none"> • Linux, open source software • Maintenance and Repair of Laptops • Maintenance of LAN • Telco engineers for school server and inventory systems • System administrators • Software localization 	<ul style="list-style-type: none"> • Software • Hardware • Connectivity • Collaboration with local service providers to get appropriate power or networking infrastructure in place • Maintenance and repair of machines and school servers • Administration of security system • Build-up of technical capacity at school level

Learning	<ul style="list-style-type: none"> • Teaching • Curriculum Planning and Development • Ability to work with teachers and students • Demonstrated leadership 	<ul style="list-style-type: none"> • Teacher Training and on-going teacher support • Content development for software • Development of pedagogical materials for teachers and schools • Development of ongoing educational programs
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OLPC Support Strategy

One Laptop Per Child provides assistance throughout the different stages of a deployment, focusing on three major types of support : Operational, Educational, and Technical.

OLPC believes building local capacity in both educational and technical fields is the key to self-sustained deployments and to the fostering of local project ownership. OLPC strategy entails pre-deployment training of core team and ongoing remote post-deployment support (via email, phone, or chats) dependent on the needs of the project.

OLPC provides free support to projects of any size. For projects with orders larger than 25,000 units, OLPC sends Educational and Technical Support staff to the country of deployment for one week of comprehensive technical and educational training. This also applies to smaller orders (5,000+ units) that have the potential for significant growth in a short period of time. For projects exceeding 50,000 units, the initial training can be extended to two weeks with 2 additional week-long training sessions within a 12 month period.

Follow-up visits to a country are on per request basis ; additional educational training can be provided 2- 3 times per year after the initial training. In-country training costs (excluding facilities and supplies) are covered by OLPC, although sponsors typically provide suitable lodging for OLPC staff. In certain particularly challenging environments can OLPC provide full-time in-country staff, including project managers, technical directors and learning directors. The costs of this level of OLPC service are negotiated at the time of the request.

OLPC Operations Support

OLPC offers direct support to funders and project managers during the planning phase of deployment when strategic decisions related to financing, legal agreements, and ordering processes need to be taken. OLPC offers ongoing support to the logistics department of core team in regards to supply-chain management.

OLPC Educational Development Support

Once a project is officially established, OLPC facilitates workshops for core teams to develop an understanding of the XO as a learning tool. OLPC provides guidance in the process of defining a support structure for schools or learning centers. OLPC provides ongoing support throughout the different teacher training phases of a deployment and for educational content development.

OLPC Technical Development Support

OLPC also focuses on building local capacity in technical aspects such as : setting local infrastructure and connectivity ; and all other responsibilities regarding software, hardware, maintenance and repairs of machines.

Volunteers and Internship Programs

Another support strategy from OLPC entails Volunteer and Internship programs. During the months of June, July and August, OLPC launches internship programs for students of recognized universities in different countries. The objective of the programs is for interns to work closely with the core team and to provide support in different areas of the projects depending on their backgrounds and areas of study.

Planning Phase

The planning phase initiates with the idea of starting a project with One Laptop Per Child and concludes once an order is placed with the manufacturer. OLPC provides assistance to sponsors in making the decisions necessary during this phase, and in defining actions required in accordance with the objectives of the program. During the planning phase, sponsors can get a better understanding of the elements involved in various stages of deployment, including human, technical, and financial aspects. The elements included in the planning phase are : consideration of possible financing approaches, a feasibility study, and a purchasing agreement followed by an order for laptops.



Financing Approaches

In considering a deployment with OLPC, project sponsors typically take one of following three approaches :

Geographic Focus

With the geographic approach, a project sponsor selects a particular region that is of interest to them. Such region can be a country, state, city or community. A multi-city approach is not recommended as it leads to less efficient use of infrastructure and administration, reducing the number of children reached. With the region selected, a project sponsor should be able to determine the number of students, teachers and schools in that region. The number of schools with electricity and Internet connectivity should also be determined. With these five pieces of information, a sponsor can use the feasibility model in the appendix to determine the annual budget for the project and decide whether a phased approach is necessary given possible budget constraints.

Budget Constraints

Many project sponsors come to OLPC with a country selected and a fixed budget to support a project. Within 2-4 hours working with OLPC, a sponsor can determine the number of students that can be benefited by the project. For this process to work efficiently, the following information is required :

- Average number of students per school
- Average number of teachers per school
- % of schools with electrification
- % of schools with Internet connectivity

Political or social objectives

Some sponsors view an OLPC project as a means of achieving political or social change. For example, the government of Uruguay undertook their project CEIBAL as a way of fostering social inclusion. This approach does not present a challenge for OLPC ; in fact, it often leads to the development of a project strategy far quicker than either of the other two approaches. With the use of the feasibility model and the four pieces of information outlined in the Fixed Budget approach, any politically- or socially- oriented project can be translated into a budget and the number of laptops to be deployed.

Key Assumptions

It is important for a sponsor to understand certain key assumptions about the costs involved in carrying out a project :

- It is recommended that full-time staff with no other responsibilities manage a deployment. Ideally, a new company/foundation or government agency is formed to undertake the responsibility. While such an approach may add to the cost, OLPC believes that the cost is more than offset by the improved effectiveness of management. This approach also leads to a healthy separation of day-to-day management from politics in government-sponsored projects.
- Pedagogical staff is the key to a successful deployment, both initially and thereafter. Consequently, the staffing budget provides for each school to be visited at least once a month after initial training to reinforce training and improve teacher skills. Significant expenses are also incurred through network and connectivity management at the school level and through maintenance of the portals that serve students, parents, teachers and the community.
- It is recommended that a project has a call center to provide help desk and technical support to students, teachers and parents. These centers also manage the repair process for inoperable units. A budget for spare parts based on historical statistics is included in the model. Necessity of repairs may vary depending on the student usage of the laptops.
- The cost of electricity and connectivity is highly dependent on the country of the deployment and service availability. The model is designed to provide for solutions in any environment from no available services for electricity and connectivity to a full complement of services similar to the U.S. and any alternative in between. A detailed survey by school conducted by trained professionals improves the accuracy of the model greatly.

The most likely factor to be overlooked is the increase in electricity consumption at schools after the computers are delivered to the children.

- A significant additional cost for the computers may be import duties and taxes. OLPC does not offer legal and tax advice and does not participate in schemes aimed at reducing or avoiding taxes and duties. Determination of applicable expenses for such items is the responsibility of the sponsor. OLPC does provide estimated costs for freight and insurance and typically quotes the laptop price as CIF. Given that OLPC has much greater experience arranging ocean freight from China (through DHL) than most project sponsors, It is recommended that the sponsor allow OLPC to do it. OLPC does not markup freight and insurance.

Financial Assumptions

The following table offers a breakdown of the costs associated with executing a project. The first group of assumptions refers to non-recurring costs such as hardware, shipping, and electrical setup (if necessary). The second group includes recurring costs such as monthly operating costs and salaries for employees.

<u>Setup Cost Assumptions</u>		<u>Monthly Cost Assumptions</u>	
<u>General Costs</u>			
Unit Cost:			
Cost FOB	\$-		
Freight	\$-		
Duties and Taxes	\$-		
Total	\$-		
Total Cost of Units Deployed	\$-		
<u>Contingencies</u>	<u>0%</u>		
<u>Administrative/Operating Costs</u>		<u>Administrative/Operating Costs</u>	
Rent	\$ -	Rent	\$ -
Furniture	\$ -	Furniture	\$ -
Computers	\$ -	Computers	\$ -
Office Support	\$ -	Office Support	\$ -
Office Supplies	\$ -	Office Supplies	\$ -
Electricity	\$ -	Electricity	\$ -
Maintenance	\$ -	Maintenance	\$ -
Telephone Service	\$ -	Telephone Service	\$ -
Transportation	\$ -	Transportation	\$ -
Travel	\$ -	Travel	\$ -
Financial Transactions	\$ -	Financial Transactions	\$ -
Evaluation	\$ -	Evaluation	\$ -
Legal	\$ -	Legal	\$ -
TOTAL	\$ -	TOTAL	\$ -
		<u>Salaries (per employee)</u>	
		Executive Level	\$ -
		Managerial Level	\$ -
		Business Professionals	\$ -
		IT Professional	\$ -
		Pedagogy Professional	\$ -
		Non-Professional Office Staff	\$ -
<u>Electrical Costs</u>		<u>Electrical Costs</u>	
Grid Installation	\$ -	Grid Power per kWh	\$ -
Diesel/Gasoline Generator	\$ -	Fuel Cost per Liter	\$ -
<u>Connectivity Costs</u>		<u>Connectivity Costs</u>	
DSL Modem	\$ -	DSL Modem Monthly Cost	\$ -
Satellite Terminal	\$ -	Satellite Terminal Monthly Cost	\$ -
GSM Modem	\$ -	GSM Modem Monthly Cost	\$ -

Feasibility study

The feasibility study can provide data for enhanced decision-making and budgeting purposes. It is recommended that project sponsors perform this study in order to have a better understanding of the target population and local infrastructure. After financing approaches and program objectives have been delineated, other elements should be analyzed before moving on. The school (or education center) selection process should be based on the objectives of the program such as saturation based on grade levels, saturation based on region or district, or saturation based on specialized programs. Having schools involved from the early stages can drive school leaders to a positive response towards the program and can facilitate project ownership at the school level. A feasibility study should include :

- School surveys
- Power and connectivity status
- Allocation of laptops (warehouse and distribution process)
- Human resources (program implementation)

Once the schools are selected, a school survey should collect information including the number of classrooms, students, teachers, and administrators. It is important to keep in mind the accessibility of schools when planning the distribution of laptops and spare parts, as well as when designing the support and supervision structures of the program. Moreover, an assessment of power, infrastructure and connectivity at individual schools should be made as part of the feasibility study. The results of the assessment should be used to revise plans in terms of timelines and costs, and to mitigate any gaps in school readiness. The assessment should include availability of grid power (or alternative sources such as generators or solar panels) and power capacity (in watts), availability of sockets within each classroom, number of school servers needed, and internet availability (DSL, VSAT, or GSM).

The following equation can be used to estimate the power requirements for each school. (The Watt- hours are dependent on how long the children are in school, whether or not they are charging their batteries while they are working, and how many hours per day the school server and connectivity are operational.)

Number of XOs	x Charges per Day	x Days of Operation	x XO Charging at High Use	÷ Convert to Kilo	= Total Power kWh
100 XOs	x 1 charge per day	x 310 Days	x 47 Wh	÷ 1000	= 1458 kWh

The total energy required to operate 100 laptops and a school server over an eight hour period is approximately 570 Watts times 8 hours, or 4560 Watt-hours. If, for example, this energy was to be generated and stored over the course of a two hour period, roughly 11,400 Watts of generating capacity would be needed to feed a battery system with adequate storage capacity, assuming 80% efficiency.

Solar Panels

If the location of deployment is remote and isolated, and no electrical power is available, solar panels can be an alternative solution. Panels of 10 and 15 Watt solar-panel solutions are compatible with the XO. The 10W panel at full output will fully charge a drained battery in

just under three hours if the laptop is turned off. If the laptop is running, then full sun with the 10W panel will provide enough average power to run the laptop and slowly charge the battery (in about six hours).

Purchase Agreements and Ordering Process

This section describes the customary process prior to ordering laptops which includes certain decisions about the technical features of the XO and the related contractual agreements.

Selecting your XO

The XO can be manufactured in various forms to best fit the local context of the deployment.

Keyboards

XO laptops can be manufactured with a variety of language for keyboards. In order for an XO keyboard to be available, a high-resolution image of the layout must be accessible and existing XO software must support the keyboard image. OLPC software releases are designed to support the International XO keyboard option.

AC Adapters

There are two types of adaptors available brick or wall mount. The XO AC adapter has an input of 100- 240 volts and is available in 3 options :

- 2 flat prong (US)
- 2 round prong (EU)
- 3 flat prong (UK)

Memory

The XO uses solid state memory instead of a hard disk. This is primarily to improve its robustness but also to improve performance and reduce power consumption. The default memory type is 1GB of RAM and 4GB of Flash. Depending on the budget and usage requirements, selection of faster or bigger solid state memory for the XO can improve performance and storage capacity.

Content and Custom Image

OLPC has developed a mechanism whereby the collection of “activities” and content “bundles” loaded onto the laptop can be readily pre-configured. It is also reasonably easy to reconfigure the XO in the field. It is the responsibility of the core team to determine which activities beyond the default set distributed by OLPC should be included on the laptop. Everything provided on the XO, including texts, dictionaries, documentation, etc., can be localized. Electronic books—in formats such as PDF, DOC, HTML—and other media can be pre-loaded onto the laptop as a content bundle. Please ask OLPC for suggestions as to potentially useful materials and pre-loaded content preparation.

In addition, a deployment may choose to deploy computers with a custom image. A custom image is a selection of XO activities designed by a local deployment team. The option to load a custom image onto the XO at the time of manufacturing depends on the level of skill and commitment from the project's technical and learning advisors. There is also a minimum order requirement for loading a custom image at the time of manufacturing. A custom image requires testing and maintenance. OLPC provides projects with the guidelines for this process ; however, no technical support can be provided for custom images as they are designed by core teams. Sponsors interested in XO custom images should consult with OLPC technical personnel, who will assess the project's suitability for this option. If a decision is reached to load a custom image at the time of manufacturing, the final image must be presented to OLPC no later than 4 weeks prior to the scheduled XO production.

Once the XO is physically customized for a particular country, it is ready to be used. However, due to the different curricula and language variations of each country, it may be useful to select specific activities to install on the XO as part of a "custom build" and also to review the content available in the local language to determine if any work is necessary to create translations or provide new content that is more culturally relevant. This could include the following :

- Pre-loading specific Sugar Activities to support specific curricula needs ;
- Pre-loading specific activity content such as e-books ;
- Browser bookmarks to country specific education websites ;
- Maps ;
- Providing language translations for Sugar and Activities loaded on the laptop (so that system messages, menus and buttons are in the local language) ;
- Providing language translations for Activity content (so that content within activities is in the local language, e.g. e-books or place names on maps) ;
- Developing customized Sugar Activities to meet specific curriculum needs ; and Developing custom content to meet specific curriculum or cultural needs.

The custom XO image option requires a certain level of skill and commitment from the technical and learning deployment advisors. OLPC will help with the bundling process, but the responsibility for testing the bundle rests with the in-country deployment teams.

Purchase Agreement

OLPC recognizes a binding commitment from a sponsor to a project upon receipt of a signed purchase agreement and a letter of credit in favor of OLPC for 100% of the value of the laptops. OLPC also accepts advance telex transfers of cash in lieu of letters of credit.

The purchase agreement includes five major sections :

1. Detailed specifications of the laptop including the configuration of RAM and flash memory ;
2. Number of laptops ordered and the price per laptop CIF ;
3. Delivery schedule ;
4. Warranty terms and conditions ; and
5. Standard legal sections such as governing law and dispute resolution.

For purchases of large quantities of XOs, OLPC will work on a contractual agreement detailing the terms and conditions of the XO orders. OLPC has a contract template that can

be modified in accordance with the deployment requirements. Issues addressed in the OLPC contract include payment terms, warranty, letter of credit guidelines, and other topics pertaining to the XO procurement process. OLPC's finance, supply chain, and logistics personnel work closely to ensure the deadlines and conditions set forth in the contractual agreement are adhered to.

Payment & Inco terms

The most common payment option for large-scale XO orders is 20% down payment and 80% payable by transferable letter of credit. The OLPC template for issuing transferable letters of credit can be found in the OLPC contract. OLPC Finance personnel are committed to ensuring any finance issues pertaining to an OLPC purchase are addressed quickly and efficiently. The Incoterm used for large quantity XO orders is CIF (cost, insurance, and freight Incoterms 2010). The CIF term means that the seller (OLPC) is responsible for the shipment and insurance costs from the country of origin to the port of destination.

The buyer of the shipment is responsible for all costs associated with the shipment once the goods are delivered to the port of destination. These costs include customs entry and clearance, entry duties and taxes, demurrage charges, landing charges at the importer's port, the unloading onto trucks at the importer's port and the delivery to the final destination.

Warranty

All XO orders are shipped with an additional 1% of units in lieu of a conventional warranty program. These units are shipped at no extra cost. In addition to the supplemental units, OLPC provides a limited warranty in the event of an epidemic failure. Details on this warranty can be found in the OLPC contract.

Local Duties and Taxes

The local duties and taxes associated with a shipment of XO laptops vary depending on the rules and regulations of the local customs authority. Import duties for laptops can be very high, and may reach 20% of the commercial value in some cases. In order to avoid such taxes, OLPC recommends that local teams research local processes for tax exemption and seek such exemption whenever possible.

Receiving tax exemption on imported laptops for educational purposes may require authorization from a number of local authorities; gaining such authorization may take considerable planning. Local customs authorities should be consulted regarding the process and time frame of receiving a recognized exemption. OLPC is able to provide any documentation necessary to process an exemption request with local authorities.

Spare Parts

XO spare parts can be purchased in conjunction with an initial XO order or at a later date. OLPC can assist the logistics department of team in purchasing spare parts from the XO manufacturer. Spare parts are available in a range of minimum order quantities. If spare parts are purchased with an initial order, OLPC can recommend specific parts and quantities.

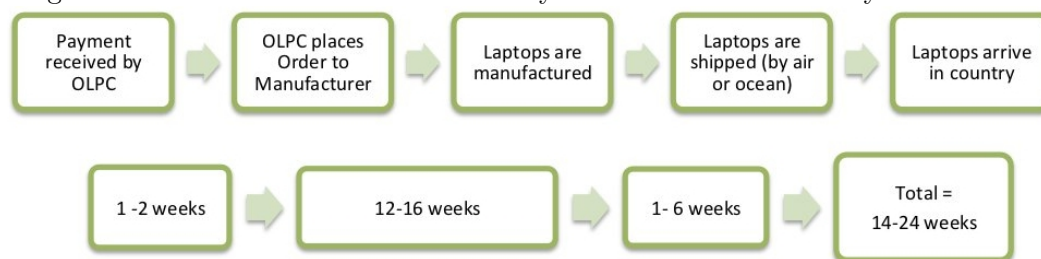
OLPC logistics staff based in Miami, FL track each order from receipt of the letter of credit through the delivery of computers to the requested port. Weekly status reports can be provided to a project sponsor. It is the responsibility of local sponsors to clear units through local customs. Local sponsors are also solely responsible for any and all duties, taxes, fees and other costs related to freight forwarding services. Additionally, local sponsors are responsible for all costs of transporting computers from the dock to the warehouse.

XO Order Process and Lead Time

In order to minimize the end cost, OLPC manufactures laptops to order and does not maintain an inventory of laptops. Formalizing the commitment to purchase XO laptops assists OLPC in working with core team to establish a deployment timeline that will lead to an efficient XO deployment experience.

Upon receipt of payment (cash in advance or letter of credit), OLPC sends a purchase order to manufacturer, this takes 1-2 weeks to process. It normally takes 12-16 weeks to manufacture the laptops. The manufacturing company has the capacity to produce 240,000 laptops per month for OLPC although pre-existing OLPC orders would normally reduce this capacity. (Few projects are capable to deal with more than 50,000 laptops arriving in a single month.) OLPC normally quotes 6 weeks for sea shipment of the units. Shipping the laptops by air takes less time from pick up to delivery destination. However, airfreight is more costly and is not recommended.

The estimated transit time for ocean freight delivery is 1-6 weeks from the time of XO availability at the manufacturer. When planning for deployment please allow 14-24 weeks from the time of payment issued to the date in which you can expect your XO shipments at the designated port. OLPC will work with your deployment team to establish a proposed XO delivery schedule. Depending on the XO order quantity, delivery can be made in one or multiple installments. Issues to consider when developing your XO delivery schedule should include : when laptops are required for teacher training prior to the scheduled roll out ; time required for local inventory systems to process an XO delivery ; final transit time for XO delivery to their destination or distribution site ; etc. This information will assist OLPC in working with core team to establish an orderly and efficient XO delivery schedule.



Deployment Phase

The deployment phase includes all events that occur between laptop order placement with the manufacturer and final distribution of XOs to schools and children. The lead time provides a term that can be allotted to conclude recruitment of local team members and to arrange

technical and educational training with OLPC for core teams. In addition, this time can be used to fulfill infrastructure needs based on the results of the feasibility study.

Warehousing facilities should be prepared for the arrival of laptops, as should be the personnel in charge of inventory management and the distribution process.

Heads of schools, along with administrators, need to be informed about the goals and implications of the program from the early stages of a project. Formal meetings with these parties and with other relevant members of the school system or political figures should be organized to set up a timeline for teacher training and other activities at the school level.

Once laptops arrive in a country, the steps to follow include setting up logistics, training the core team with OLPC, setting up school infrastructure, preparing schools and community, and rolling out laptops.



Setting Logistics

The logistics department of core team is responsible for managing the local logistics process once the shipment is delivered to the port of destination. This logistics manager will be responsible for facilitating the customs clearance process and local delivery of the shipment to its final destination. An efficient and speedy logistics process is not only important to maintain the proposed deployment schedule, but also it is also vital in order to avoid any charges or fees which may be applied to the shipment if there is a delay in customs clearance or unloading at the port of destination.

Once the laptops arrive in a country, clear customs and arrive at a sponsor warehouse, there are three key tasks that need to be performed :

1. The laptops need to be individually inspected for damage suffered during transit, and any insurance claims need to be prepared
2. The laptops may need to be loaded with the latest version of the operating system and any local content, if there have been changes to the software since the units were shipped. This procedure also serves as confirmation that the computers are in working order and are ready for students and teachers
3. The laptop serial numbers should be entered into the inventory management system along with the identification numbers of each student and teacher. This procedure provides the basic information, which is then updated to reflect repair history, laptop transfers, or replacements.

Warehousing

When developing plans for local storage of XOs, it is important to consider the security of storage facilities, impact of weather on stored XOs, and possible insurance coverage required.

Final delivery of XOs to schools or distribution sites should be planned and budgeted for. If additional containers or trucking is needed to transport the laptops to their final destination,

it is important to budget for such costs. The OLPC Operations department can provide information on packing dimensions and any other packing concerns.

Local warehousing enables stocks of laptops to be stored for configuration while the logistics infrastructure is prepared for laptop roll out. Strategic placement of regional warehouses can reduce the cost of logistics and improve efficiency of laptop repair and replacement.

Laptop Distribution Plan

In the experience of OLPC, most sponsors can only distribute a maximum of 60,000 machines per month. Machines are typically distributed by third party companies, the military, or multi-lateral relief agencies such as the World Food organization. These organizations have extensive experience in secure logistics. In many countries, one thousand laptops is a high value target for theft, and security should be a primary concern in selecting a logistics company. Any celebratory events should be timed to match the arrival of computers at schools (which should coincide with the availability of Internet).

OLPC's experience shows that the best distribution plan is to start with easiest areas first, unless there are political considerations. Starting in the easiest areas allows for any last minute changes in plan to be identified and implemented. Staff also learns faster when they can focus on the simpler installations and do not have to install solar equipment or satellite earth stations.

Spare Parts Management

Spare parts management is an often overlooked but key part of a successful ongoing deployment.

Machines break as a result of use by kids ; historically, repairs are higher in areas with the poorest children. Not surprisingly, these students lack experience with consumer electronics and the proper care and treatment of computers.

A project should plan for the receipt of a spare parts inventory within 6-9 months of the laptops reaching the children. Up until that time, the 1% of surplus units shipped with every order should be sufficient to handle repairs. OLPC logistics staff can provide advice on how to determine the composition of the initial repair order ; with time, the project should be placing spare parts orders based on actual data.

Baseline study

Prior to starting a deployment it is advisable to have on record data that describes the scenario where the project will be implemented. The project manager and the core team can work in conjunction with evaluation experts or academic/research institutions to design an evaluation framework capable of measuring the project's impact in relation to the objectives expected to achieve. The design has to be aligned with measures of students learning, therefore a careful analysis of indicators and tools need to be conducted.

The baseline information can serve as a valuable starting point to better understand the community involved in the project, and can even lead to formulation of objectives that stakeholders wish to achieve. It also grants the ability to measure the impact of a project, because it allows researchers to statistically analyze and compare baseline data with data collected throughout the years of a project's implementation.

The goals and expected outcomes of the program should be the criteria for selecting the type of data to collect as a baseline. Institutional data can measure changes in school attendance, school enrollment rates, and drop-out rates. Measures of social and behavioral impact can include surveys or questionnaires related to attitudes, motivations, and opinions from parents, students and community members about the project itself or about students' learning. Students' performance can be measured by standardized local or national exams. Traditional exams fail to evaluate new skills that students develop as they incorporate technology into their learning. New dimensions of learning need to be assessed, such as problem-solving skills, critical thinking, management of multiple sources of information, the capacity for reflection, communication using multiple means (visual, auditory, interactive, etc.), individual and team work skills, and self-learning abilities; more complex dimensions include agency (Carlson & Earls, 2001) and effectiveness of children and young people at making significant changes to the environment in which they live (Kamo, N. et al., 2008). are. Deployments are encouraged to explore innovative ways of measuring student learning, and to attempt documenting and measuring new learning dimensions.

Setting Core Team

As we have explained in previous sections of this guide, the Core Team refers to the local team in charge of implementing different domains of a deployment. In this section we will focus on the technical and learning teams. Their work is crucial for a successful implementation of a deployment; the members need to be carefully recruited and supported financially and proactively for the duration of the program. At this point of the deployment phase it is crucial to have established the Core Team.

The size of these teams will depend on the number of units for the deployment. Although technical and learning teams both focus on very different areas, the ideal situation is that they constantly work as one team, communicating plans, challenges, and updates on a very regular basis. It is the responsibility of the project manager to facilitate the relationship these teams will institute. It is essential to provide constant guidance to the core team by someone with the appropriate area of expertise. Having a manager for each team is deeply advisable. These managers should maintain constant communication with OLPC technical and learning teams.

OLPC will facilitate a strategic workshop with the core team to :

1. Build capacity in managing the XO, its activities and its uses as a learning tool.
2. Build capacity in setting up infrastructure, connectivity and other technical requirements at school or community level.
3. Determine the support structure (for technical and pedagogical aspects) that will run from the core team to the school or learning center.
4. Determine and assist in the strategies for initial and ongoing teacher training, and in the development of content for schools and teachers.
5. Define strategies to integrate community and family members in the project.

The duration of the workshop can vary between several days to several weeks. This will depend on the characteristics of the project : deployment size (amount of laptops, scaling and distribution plan), core team (background and size), project location, project objectives, and

infrastructure status. The duration will also depend on the agreements reached during the planning phase with project manager and OLPC, and on the specific contextual needs of the project. The content and activities of this initial workshop also vary depending on the needs and experience of the participants. However, the approach/methodology and some content are common to all workshops for they revolve around the same principles we advocate : learn by doing, by constructing, by collaborating, and by reflecting.

We highly recommend the learning and technical managers of core team to start discussing content, length and timing of this workshop with enough time with OLPC through online webinars. This will allow OLPC and deployment to define the details of workshop and for the core team to advance in necessary preparations prior to training.

OLPC training description

The goals of the OLPC learning workshop can include :

- To develop an understanding of the OLPC Learning Theory and Pedagogy.
- To provide a hands on experience of the Sugar Learning Platform.
- To enable core team to use the XO in effective learning strategies through construction, expression, and collaboration.
- To integrate 1 :1 computing to curriculum and to informal learning environments.
- To evaluate learning within 1 :1 computing environments.

Some technical contents of the workshop can be covered simultaneously with learning team and technical team, while other advanced topics should be covered separately with technical team. The goals of the OLPC technical workshop can include :

- Basic Software and Hardware troubleshooting
- Create and use USB Re-flash stick
- Connecting and registering to School Server
- Configuring Access Point.
- Installing and configuring School Server
- Defining a tech support strategy
- Defining a maintenance and repair strategy wide scale and school based

The following agenda is a sample of the topics usually covered during a 1 week workshop with Core Team :

Day	Topic/Activity
1	<ul style="list-style-type: none"> • Welcome and introduction • OLPC Overview: Principles, Mission, Philosophy • OLPC Pedagogic Model: Constructionism • Readings and Reflections: Children, learning, and computers • Hands-on: Overview of tools available in the XO • Introduction to the XO: Hardware and Software.
2	<ul style="list-style-type: none"> • Introduction to Logo and Turtle Art Activity • Create and use Reflash stick • Basic Hardware troubleshooting • Using the XO as a learning tool
3	<ul style="list-style-type: none"> • Programming Activities on the XO: Scratch • Collaboration and learning networks • Basic Software troubleshooting
4	<ul style="list-style-type: none"> • Project implementation: Building teams for successful deployments • Community and school preparations • Developing local capacity: Teacher training • Curriculum, content and materials in 1-to-1 environments • Experiencing project based learning: Elaborating projects using the XO
5	<ul style="list-style-type: none"> • Presentation of projects • Integrating families and other community members • Power and connectivity • Assessment and metrics • Q&As

The workshop is a hands-on experience that will not only enable participants to become familiar with technical and pedagogical aspects of the project, but also enable them to reflect on the strategies that should be defined in the schools or learning centers.

OLPC offers follow up workshops that can be performed several months after deployment is operating or once the core team has acquired the basic experience, knowledge, and skills that benefit their deployment. This option of workshop can instead be performed during an initial training with OLPC if participants already demonstrate an advanced level of skills. Another option for follow up trainings consists on specialized workshops that focus on a specific topic of interest to the core team and to developed additional and specialized skills. Finally, OLPC offers Regional Workshops to address needs common to a specific region. For this OLPC selects a strategic location that will allow participants from multiple deployments to attend.

The following are examples of advanced workshop for Core Team :

Topic/Activity	Description
Programming and Debugging	Developing programming and debugging skills such that participants can mentor students in advanced project development. Involves demonstrating in-depth skills in activities such as: Etoys, Python Programming.
Robotics	The use of sensors and other robotics platform with the XO incorporated into project development.
Sugar Community	Participants make contributions to the Sugar community by designing materials or Sugar Activities for a local content or for the global Sugar community.
Curriculum Development	Develop a collection of advanced and innovative Lesson Plans aligned with the local curriculum.

Content Development

Another recommended strategy for core teams to implement is the development of content for communities and schools. The following documents are examples of such content : a) How-to Guides for different uses of the laptop b) Ideas for projects that correspond to specific topics, which might be of interest and/or relevance in the environment where students and teachers live. c) Lesson plans that show how to use different Sugar Activities when teaching different parts of the national curriculum

We recommend the establishment of an initial library of projects that will help teachers to integrate the computer into their teaching practice while motivating them to create their own projects, focusing on the training approach described in the previous section. It may be that each teacher uses the computer in their individual class, or that teachers from different areas come together to design joint projects. Either way, this approach will help make explicit the concepts that the projects integrate and promote, highlighting especially those concepts that one can "manipulate" and understand by using the laptop, but which would be more difficult, or nearly, impossible, with pen and paper.

Setting Local Infrastructure

Prior to the arrival of laptops, the technical members of core team should evaluate, setup, test, and hold responsibility for the network and power infrastructure at schools and/or other community centers. OLPC can begin supporting the core team before in-country training takes place, thru online webinars or chats. During the OLPC in-country visit the hands-on training takes place, and the core team should be prepared for setting up the local infrastructure. OLPC will continue to support the technical teams online after the in-country training has concluded.

Power

The electrical infrastructure of schools has to be evaluated according to power demand generated by XO laptops, servers, and other devices. If the infrastructure is inadequate, it needs to be upgraded.

Connectivity

Although the OLPC ecosystem provides a self-configuring local-area wireless network, connectivity to the Internet needs to set up separately. OLPC can assist in the planning and integration of a laptop network into a national infrastructure. OLPC staff has experience with VSAT, DSL, etc. that it is happy to share. Many of the in-country teams have even more experience, especially in regard to rural deployments. Sharing best practices is in everyone's interests. As with the laptop deployment, connectivity cannot happen everywhere at once. A phased effort carried out ahead of the laptop deployment is ideal. It should be noted that the wireless mesh network provides local "Ethernet"-like connectivity without any additional infrastructure.

School Server

Part of our deployment model is the utilization of school servers. School servers can be basic PCs that run Fedora, a variant of Linux. School servers are designed to provide gateways to the Internet, local content repositories, XO back-up platforms, school management solutions, etc. Large networks require servers designed for the size of the intended deployment to be placed in local school.

Some key benefits school servers bring to a deployment are :

Compatibility The OLPC Server is a software stack that can be installed on any reasonable PC or server to complement the XO and help school environments provide a safe, well-managed and learning- oriented environment. No special hardware is required.

Backup The XOs can all backup to an OLPC Server to ensure content isn't lost. All XO Journals are backed up to school servers, and teachers can view the Journals to gain an understanding of how the XOs are used, as well as to track students' progress and identify where they may need help.

Digital Library A Digital Library makes it easy for students to publish works (with teacher moderation) to other students and possibly to other schools. Teachers can easily add new resources to a Digital Library, which students can access at school (e.g. there are over 1.6 million free e-Books available)

Management and Security Operators with high levels of technical skills can use school servers to manage network access, to lock laptops that get stolen or that aren't returned to schools, and to provide local software repositories for laptop updates, etc.

Proxy Server An OLPC Server can act as a network proxy. This saves Internet bandwidth, makes Internet access faster and provides a mechanism for content filtering that can be used to block inappropriate content.

Continuous Development There are additional features coming to school servers, including Video conferencing, GPS and GIS functionality, Voice over IP, Instant messaging, and News services (blogging, forums, etc.) Servers are built on an Open Source platform, so they can be modified to suit particular needs of projects.

As important as all of the above-mentioned services are, the primary role of school servers is to facilitate the operation of local area networks. Without servers, XO laptops use multicast to communicate with each other, which puts heavy loads on wireless networks ; multicast can

only connect up to 20 laptops simultaneously School servers eliminate the need for much of the multicast traffic

Recommended minimum specifications for a school server are as follows :

<20 XO's	<40 XO's	<80 XO's	<120 XO's	>120
no server needed, but functionality useful	server + 1 access point	server + 2 access points	server + 3 access points	server + many access points + site survey

Server	Laptops Supported	Processor	RAM	Storage
Small	<20-25	466 MHz	256 MB	40-60 GB
Large	<150	1 GHz	1 GB	320-400 GB

The amount of power required for school servers depends on the specifications of machines used. This needs to be taken into consideration during site preparation.

Preparing Schools and Community

When laptops are ready to be distributed, and assuming school infrastructure is ready, it is time to prepare teachers and other community members for this experience. Teacher training and community awareness can occur simultaneously but can also happen at different moments. Variables related to location, size, and readiness of each school or community need to be considered when deciding the order in which to implement each event.

Teacher Training

Teacher training is an essential component of an OLPC project and it should be an ongoing process. Teachers should be the first members of the educational community to receive information on and become involved in initiatives that have direct effects on their own professional practices. It is recommended to begin training teachers and provide them with XO laptops during early stages of a project ; this approach will raise their level of trust and commitment to the initiative.

The most important aspect of teacher preparation is in regard to how children learn. Educators have long recognized that children learn best when they are active, when they pursue their own interests, and when they participate in cultures of knowledge and engagement. With 1-to-1 access to connected laptops, children actively engage in knowledge construction and are not limited to passive reception of information. Each child (and the teachers themselves)

can pursue learning in areas of strong personal interest and the classroom is not limited to a pre-determined, one-size-fits-all approach.

Teachers benefit as well. Not only do they get to use the laptops at home for their own learning, but the connected laptop becomes a conduit for customized professional development. This enables the teachers to gain access to expertise and colleagues and allows them to pose and respond to practical questions. They can fully participate as producers of knowledge and not just as consumers of materials produced by others.

The core team should develop different strategies to develop teacher's capacity :

1. Training workshops : where teachers learn to use the computer, and, at the same time, to incorporate it into their pedagogical practice.
2. Support mechanisms : Although the contents of the initiative constitute an important support mechanism to the practice of teaching, other mechanisms must be implemented, including in- class assistance, which can occur through agreements with universities, telephone help lines that can be set up with technical developers in the country, and Blogs or online forums where teachers can participate.
3. Teachers' clubs : work spaces where teachers can meet regularly to share successes, problems, and solutions.
4. Guides and Resources.

During the first teacher trainings teachers should learn basic uses of the laptop and how to incorporate it into their pedagogical practice. Training should be guided by the vision and goal of the overall initiative. We recommend that the appropriate approach is "learning by doing" and that the "doing" be focused on developing concrete projects within the classroom. The core team should adapt the content and length for the initial training based on the teachers' skills.

It is recommended that the technical team performs training sessions along with the educational team, to prepare teachers for basic technical troubleshooting regarding software, hardware, and connectivity. During these first approaches with teachers, the core team can quickly identify participants who demonstrate leadership and that can be key contacts to support the project at the school level. Depending on the scale of the project, the core team can decide whether to train teachers directly or to train Teacher-Trainers that will later reproduce the trainings to other teachers. Some projects decide to perform wide-scale trainings, an approach organized for several schools to attend. Schools can select key members of their staff to participate in this training, with the intention that these trainees become leaders and multiply the training at their own school. Another approach consists in assigning to each member of the core team a specific school in which to perform training for the staff on site. Whichever approach is decided, the core team needs to constantly monitor the progress of each school and teacher.

The following agenda is a sample of the topics the core team can be covered during an initial teacher training :

Session	Topic/Activity
1	<ul style="list-style-type: none"> • Description of Project Objectives and Policies • Expected roles of teachers • OLPC Pedagogic Model: Constructionism • Hands-on: Overview of tools available in the XO • Introduction to the XO: Hardware and Software.
2	<ul style="list-style-type: none"> • Connecting to the internet • Using the XO in class • Developing in class projects
3	<ul style="list-style-type: none"> • Integrating math curriculum with the XO • Collaboration and learning networks • Create and use Reflash stick
4	<ul style="list-style-type: none"> • Integrating science curriculum with the XO • Basic Hardware and Software troubleshooting • Creating XO clubs
5	<ul style="list-style-type: none"> • Integrating language arts curriculum with the XO • Evaluating learning in 1:1 environments • Basic Software troubleshooting

Deploying laptops to every child in an entire region or country cannot be managed by the core team alone. It must be led by the core team, and supported by regional teams. The core team will need to set the guiding principles of the program whilst the regional teams will be responsible for executing the deployment in their regions according to these principles, raising any concerns and coming up with viable alternatives where necessary. Various functions should be delegated to the regional teams for management where these functions are naturally distributed across the country or region.

Community Awareness

Prior to the arrival of laptops in a community, it is important to prepare different groups of people that will be impacted with the project : parents, teachers, school directors, families, and other active members of a community. The Minister of Education and Local Leaders should be involved in communications about the program, its goals, characteristics, benefits and derivative commitments.

Project coordinators must carefully plan awareness campaigns, by selecting appropriate tools (print outs, posters, signs, etc.) and communication strategies (radio or television spots, meetings, etc.) tailored to the unique characteristics of each community and the scale of each project. The timing of the campaigns should also be carefully thought through in order to allow communities to prepare for formal program launches. If national campaigns are created to inform different audiences about projects, such campaigns should be rolled out before laptop distribution or after more formal community awareness actions are taken by core team.

The preparation phase plays a significant role in creating positive expectations, attitudes, and involvement from all members. When communities understand the programs and their benefits, there are direct impacts on learning and on how well the laptops are taken care of. Both nationally and locally, communities must know what one laptop per child means. The children are the best ambassadors, but parent and community leader involvement is also influential. Fostering awareness is very important to the success of initiatives, both because

it allows families and other community members to be involved in the learning process of children, and because it allows them to be active participants in the creation of a new culture and new learning experiences within their community. Parent meetings can be held at schools or community centers and should include, but not be limited, to the following topics :

- A description of responsibilities and roles involved in the different phases of the project.
Tasks to be defined, organized and carried out by different action groups.
- Establishment of standards for sharing laptops among siblings and to older children.
- Security of the laptops. How and why to take care of the machines.
- Charging process.
- Internet access.
- Signing of agreement by parents

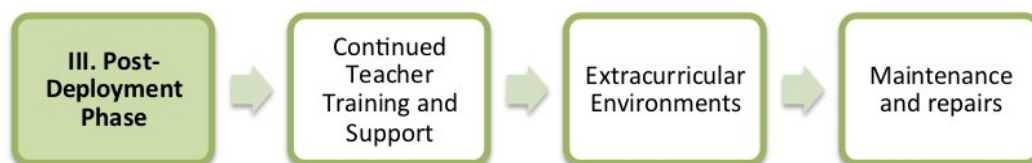
Other actors can be invited to the meetings so they can become part of the initiative and to materialize agreements with various consultants and / or volunteers of the project.

Post Deployment Phase

There is a tremendous tendency to think that the work is done once the laptops reach the children, but the laptop arrival really marks the commencement of the most critical phase in a deployment and its positive impact on the children.

Post deployment should focus on three key areas :

1. Continued Teacher Training and Support
2. Extracurricular Environments
3. Maintenance and Repairs



Community support is also a key success factor for a project. Many projects establish web portals for students, parents and teachers where they can share information and see the progress of the students. Many projects also sponsor contests using the laptops which can be supported by private sector sponsors. An additional resource is the websites and portals of other OLPC projects around the world where additional ideas for community support are available.

Every project should have an ongoing public relations program to build community support, develop pride in the project and its results and possibly as a means to attract additional funding. Many projects have international public relations programs that attract academic interest in the local project and prompt visits from multi-lateral institutions interested in education and social projects. Through its public relations program Project Ceibal in Uruguay has garnered worldwide attention as one of the leading educational laboratories in the world.

Evaluation Studies

Many projects benchmark their students and then periodically evaluate the student progress every six or twelve months. The UN uses six month evaluations and large federal projects

typically evaluate students every year. The advantage of benchmarking is that it provides objective, transparent feedback on the success of the project and many multi-lateral financial institutions require it. OLPC leaves evaluation to the sponsor's decision, but OLPC can provide resources to implement an evaluation program.

Continued Teacher Training and Support

Teachers are a key part to any successful deployment. As the teachers see the increased student enthusiasm for learning as a result of the laptops, the teachers naturally become more demanding for their own additional training; help to integrate Sugar into the curriculum and hands on assistance to develop lesson plans using the laptops. Every project should be designed to provide a minimum of once a month additional training to every teacher in the project. It should also be noted that the teacher trainers will need periodic additional training from OLPC to reinforce the OLPC pedagogy and expand their skill levels.

After initial teacher training has occurred, the local learning team must provide other support mechanisms for teachers in order to aid the process of integrating laptops to their daily teaching routine. In-class assistance, support for lesson plan development, are examples of strategies to be offered on a school level. Regular meetings with teachers can provide direct feedback for educational team to plan for additional learning workshops, which should be based on teachers and students needs. These meetings also provide an opportunity for teachers to share their experiences, learn different strategies, plan interdisciplinary projects, and create strong school ties.

Content Development is another area that core team needs to constantly work on. It is important for teachers to have access to updated and innovative resources. Examples of this content can include : Lesson plans, Guides, Case studies, assessment guides, online resources, and blogs.

Extracurricular Environments

Extracurricular programs where children can use the XO laptops outside of school settings are essential for meaningful learning experiences. When children are highly engaged in using the XO for activities they are interested in, not for contents limited to school curriculum, we allow them to fully explore their interests while appropriating new technological skills. It allows children to use self expression and creativity and consequently become fluent with the technology, while increasing their motivation, self empowerment, and impacting their lives in an extraordinary way.

We recommend designing and organizing After-school/ Weekend programs, clubs or camps with specific topics or activities at different schools or communities. These programs can involve teachers, students from different levels, as well as local partners and can provide an excellent experience where learners (teachers and students) create, collaborate and share projects and ideas.

Integrating the family through activities that allow parents to work with their children in specific projects related to their interests is another enriching experience for students and families. The objective is not only to enable parents to share knowledge and experience with their children, but also to understand the value of the computer and how it fits into the learning process. This is also important for the viability and sustainability of the project.

Maintenance and Repairs

The actual repair of the laptops may be handled in many ways. There are three popular methods :

1. The students repair their own laptops and parts are delivered to the schools bi-monthly based on an order.
2. The laptops are repaired by third party repair facilities located throughout the project area ; this approach creates local jobs.
3. The laptops are repaired by technicians who visit the schools on a bi-monthly basis and make the repairs.

The choice of a repair procedure depends on the educational, political and economic objectives of the project sponsor. Another issue with respect to repairs is who pays for the parts and labor involved in repairing the laptop. Some projects offer the first repair for free and subsequent repairs are paid by the child's parents. Other projects offer all repairs for free because the families lack the money to pay even a small cost. The policy with respect to repairs and payment should be explained at the initial community event where the project is introduced to school administrators and parents. Laptops are shipped with an overstock of 1% of the order. These "extra" laptops should be used as replacements for failures in the field. Thus the "broken" laptops are a ready supply of spare parts for other components, such as the display, the wifi antennae, and the motherboard.

Most repairs, including replacement of the motherboard can be done in the field with just a screwdriver. The children can make these repairs themselves and are encouraged to do so by OLPC. Regional distribution of spare parts is something to consider, as well as the authorization of regional repair centers.

While commercial-grade support could be arranged, it is discouraged by OLPC both because it tends to raise costs and it adds a level of external dependency that is unnecessary. If you feel the need to invest in support, we encourage you to make that investment locally, the local community can be trained by technical team to do this themselves.

Summary of Recommended Tasks

Planning Phase

- Define Budget for : Purchase, Infrastructure and Connectivity, Staff.
- Hire project manager and Core Team managers.
- Select Target community (schools, centers).
- Define XO specs.

Deployment Phase

- Hire staff for Core Team.
- Arrange training for Core Team with OLPC.
- Develop Laptop Distribution Plan.
- Design and collect data for Baseline Study.
- Prepare Infrastructure and Connectivity (at schools and community level).

- Organize and Perform Teacher Training.
- Laptop Distribution.

Post-Deployment Phase

- Design and perform Tech support strategy for Laptop Maintenance and Repairs.
- Design and supervise Learning Environments with the XO : Formal (in school, classroom),
- Non-Formal (extracurricular activities), Informal (home, family).
- Perform follow up teacher trainings.
- Design and apply Evaluation studies (for students learning and project implementation).

Related websites

- Official OLPC website : <http://laptop.org>
- The OLPC Wiki : <http://wiki.laptop.org>
- http://wiki.laptop.org/go/Deployment_Guide : The wiki version of deployment guide might contain additional information to start up deployments, and provide a place for you to share your lessons learned.
- <http://en.flossmanuals.net/Sugar> : The Sugar Manual on floss manuals, searchable as a website or downloadable as a PDF.
- <http://forum.laptop.org> : Official OLPC community support forum.
- Frequently Asked Questions : http://wiki.laptop.org/go/Support_FAQ
- <http://wiki.sugarlabs.org>

The Sugar Labs Wiki, provider of the Sugar software environment and activities that run on the XO laptops.